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ABSTRACT

A project was undertaken to identify common skill and knowledge competencies in various occupational areas in order to provide vocational instructors and administrators with an up-to-date skill analysis for use in curriculum development. To compile this data base, researchers developed task surveys to determine the minimum competencies needed by workers in the following occupations: appliance repairer, buyer, computer operator, computer programmer, diesel mechanic, electronic mechanic, electronic technician, nursery school attendant, real estate agent, solar technician, teacher aide, and waiter/waitress. Six of the 12 occupations were selected to have task inventories verified by vocational advisory committees already established at Pima Community College in Arizona. For the other six occupations, contacts were made with various private businesses and public agencies. The number of incumbent employees responding to each inventory ranged from 7 to 35, and the number of task statements on the individual inventories ranged from 32 to 201. Data collected from the inventories were analyzed and compiled into competency listings for each occupation. (All 12 inventories and competency listings are included in the report.) (MN)

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APPLICATION OF TASK INVENTORIES FOR VOCATIONAL CURRICULA DEVELOPMENT

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INTRODUCTION

This project was funded by Arizona State Department of Education, Vocational Education Division and was conducted by the Division of Continuing Education at the University of Arizona.

The 1975-76 Arizona State Plan for Vocational Education in Arizona indicated that there was a basic need for research to identify common skill and knowledge competencies in various occupational areas.[1] This project was designed to meet that need by surveying workers in various occupations to reflect minimum necessary competencies for vocational education training programs. These competencies, verified by incumbent workers, are useful in designing and revising up-to-date curricula for secondary and post-secondary vocational training programs.

To determine which occupations to include in our survey, the following procedures were used:

A. Current Arizona Department of Economic Security labor market statistics were reviewed to ascertain which occupations had high projections through 1985.

B. Local training programs were surveyed in order to avoid duplication of current competency-based curricula.

C. Information regarding educational requirements was compiled to eliminate those occupations which require a bachelor's degree.

In addition, it was deemed necessary to focus on occupations for which short-term training did not exist locally.

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[1] A Survey of Common Elements in Appliance Repair, Refrigeration, and Air Conditioning, Final Report. Hill, Claire. Northern Arizona University, Flagstaff, June, 1976. ED. 166 549

Based on these procedures listed above, the following twelve occupations were chosen for inclusion in our project:

Appliance Repair	Electronic Technician
Buyer	Nursery School Attendant
Computer Operator	Real Estate Agent
Computer Programmer	Solar Technician
Diesel Mechanic	Teacher Aide
Electronic Mechanic	Waiter/Waitress

Using the survey questionnaire process, task inventories were designed for each of the twelve occupations and administered to experienced, incumbent workers in the Tucson and Phoenix areas. Completed task inventories were analyzed to determine which skills were considered important. Tasks were ranked according to their mean scores.

The goal of the project was to provide vocational instructors and administrators with an up-to-date skill analysis in these twelve occupations.

PROCEDURES

After an extensive review of the literature, a decision was made to develop task inventories based on information obtained from the Center for Research in Vocational Education at the Ohio State University to determine minimum necessary competencies. The project coordinator made an on-site visitation to Ohio State University in order to more thoroughly understand procedures and guidelines used to conduct a task survey process.

The task survey process is a survey questionnaire approach to job analysis that provides performance data useful in determining curriculum content for occupational training programs. It determines necessary competencies and weeds out those that are irrelevant or unessential to a

training program.

The listed job tasks are derived from published job materials, job analysis studies, employer training programs, available task inventories, curriculum guides, and special projects. These tasks are used as the unit of analysis for identifying, verifying, and validating the occupational competencies, which are necessary for development of a competency-based curriculum. The survey-questionnaires are administered to people who are directly knowledgeable of the occupational tasks necessary for competent employment performance and current occupational needs: employees and supervisors.

The task inventories used in this project were designed utilizing available published materials from the following resources:

1. The Adult Competency Education Project, San Mateo County Office of Education.
2. Curriculum Materials Service, Vocational Education Department, Colorado State University.
3. DACUM Charts, Holland College, Prince Edward Island, Canada.
4. DACUM Chart Exchange, Humber College, Toronto, Ontario.
5. ERIC Document Reproduction Service.
6. Instructional Materials Laboratory, Trade and Industrial Education, Ohio State University.
7. The League for Innovation in the Community College, Los Angeles, California.
8. LINK Educational Laboratories, Alabama State Department of Education, Montgomery.
9. Organization and Human Resource Development Associates, Inc., Austin, Texas.

10. Skills Training Improvement Program, Columbus, Ohio Public Schools.

11. Technical Education Research Center - Southwest, Waco, Texas.

Decisions for selection were based on accuracy, clarity, and conciseness; favorable attention was given to those task statements which were measurable. (See Bibliography for full credit.)

ADMINISTRATION OF INVENTORIES

Coordinated efforts for distributing and validating the task surveys were established between the University of Arizona and Pima Community College with the support of Associate Dean of Occupational Education, Charles Macon. Six occupations were selected to have task inventories verified by vocational advisory committees already established at Pima Community College. They are:

Computer Operator
Computer Programmer
Electronic Mechanic
Electronic Technician
Nursery School Attendant
Teacher Aide

The project coordinator and the Associate Dean of Pima Community College attended Pima Community College's Vocational Advisory Committee meetings for the aforementioned areas to solicit the members' support and cooperation for validation of the task inventories. The committees were composed of representatives from business, industry and government for the various occupational fields. The project's goals and procedures were explained to the committees, and the members were requested to either complete the task inventory themselves or, if possible, give it to appropriate employees at their place of business, organization, or agency. It was suggested that

any of the companies could duplicate as many extra task inventories as needed for distribution to their employees. It was stipulated that only those employees respond whose job title corresponed to the specific task inventory.

For the other six occupations, contacts were made with various private businesses and public agencies. A minimum of five employers' were contacted for each of the following:

Appliance Repairer
Buyer
Diesel Mechanic
Real Estate Agent
Solar Technician
Waiter/Waitress

ANALYSIS OF INVENTORIES

The standard for a minimum number of responses was set at five for each inventory, although efforts were made to solicit a greater number. No ceiling for maximum number of responses was set since businesses could duplicate copies. The number of responses ranged from 7 to 35. The highest number were in the electronics field; this reflects the greater number of employees in that occupation in the Tucson community.

An analysis for the Solar Technician inventories was not made because the number of responses fell below the minimum standard of five responses. Five employers in the solar energy contracting business were selected and contacted on the basis of referrals from the Electric League of Southern Arizona; however, an insufficient number were returned. A sample of the inventory is included in the Appendix. One employer, John Crane from Sunpower Systems

Corporation, stated that employment needs were currently being met by those trained in electrical and plumbing construction skills. He cited a need for solar training within the next two to five years.

The respondents rated between 32 to 201 task statements on the inventories; the greatest number on any one inventory was in the highly technical area of Electronic Mechanic. The tasks were checked or rated for three separate categories: if they performed the task, the time spent on a task, and the importance of a task. The following scale was used for rating the importance of the task:

1 - No importance
2 - Some Importance
3 - Significant Importance
4 - Great Importance

An arithmetic mean of the ratings for the importance of a task was computed for each task statement. The tasks which received a mean score of 2.0 or greater were included in the Competency Listing established for each occupation. The tasks were grouped in categories of cluster skills and a mean was computed for each of the categories, as well as for each task statement. The categories appear in rank order in each of the competency listings. The analysis included those inventories which were only partially completed because if was felt that "no response" represented an evaluation of the task statements of categories. Some respondents wrote in comments or additional tasks not included in the inventory; however, no pattern was noted in any of the twelve areas and are not included in the Competency Listings.

SUMMARY

Effective vocational education programs require a valid basis for determining learner performance objectives. Such objectives should be based on occupational analysis of the work performed by individuals in the field. This input from incumbent workers and supervisors is a very effective basis for instructional planning and development since it reflects the requirements for employment.

It is suggested that the Competency Lists included in this report be considered for such instruction and curriculum design. The tasks have been organized according to major competency areas; however, in designing a curriculum these tasks could be reorganized according to normal job sequence, degree of complexity, or common clusters of skills.

Once this has been done, terminal performance objectives for each task or group of tasks can be written which would specify the performance, conditions, and standards. This will provide relevant and meaningful instruction that will enable the learner to reach minimum level performance. Following the completion of performance objectives, evaluation instruments, instructional blocks and lessons should be developed and sequenced.

In addition to providing performance objectives, the data from the task inventories are of value for the following reasons:

1. Identifying Common Skills

   The task analysis identifies similar or identical tasks which are performed in different or related occupations. This is particularly true in service occupations where a common cluster of business tasks are performed. Disseminating such information to various vocational

education programs can economize on the cost of instructional materials as well as teacher planning and development time.

A comparison of listings of tasks for two or more related occupations also provides the basis for grouping tasks for a common-core approach for programs that provide entry opportunities into many positions in the same occupational area.

2. Maintaining Current Content

An occupational analysis provides the basis for identifying areas of performance that are rapidly changing in an occupation. The information derived from the survey-questionnaires can aid teachers and supervisors in keeping abreast of technological changes; in identifying obsolete skills or content that need to be eliminated from the program; in adjusting instructional emphasis as job demands change; and in relating learner progress.

3. Evaluating Present Curriculum

The occupational analysis helps determine how well the content of available instructional materials correlates with the requirements of employers for employees in the field. Thus, it can be useful in curriculum revisions or adaptations to current occupational needs.

4. Selecting Teaching Hardware

A listing of tasks provides the basis for determining tools and equipment necessary for the instructional program. The list can be a guide for the selection of textbooks, learning materials, and practice

activities, and aid teachers in developing teacher-made evaluation instruments.

5. Providing Occupational Information

The analysis provides occupational information for counselors, instructors, students, job hunters, parents, and administrators since it is a listing of duties and tasks that an employer is expected to perform. This provides specific occupational information about a particular career that is not given in a job description.

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TASK INVENTORY

FOR APPLIANCE REPAIRER

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Working With the Public and Customer Relations			
1. Explain malfunction and repairs needed.			
2. Estimate job costs and explain to customer.			
3. Perform service or repairs required.			
4. Check unit for proper operation.			
5. Clean-up servicing area and unit.			
6. Complete the service order.			
7. Obtain customer's signature.			
8. Make call-back to check customer satisfaction.			
9.			
10.			
B. Using Hand and Power Tools			
1. Identify and replace unsafe tools.			
2. Care for and maintain hand tools.			

TASK INVENTORY

FOR APPLIANCE REPAIRER

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
3.	Measure with steel rule or tape.			
4.	Use screwdrivers.			
5.	Use wrenches, sockets and nutdrivers.			
6.	Use torque wrench.			
7.	Cut metal with hack saw.			
8.	Use chisels.			
9.	Use punches.			
10.	Use hammers and mallets.			
11.	File metal.			
12.	Use pliers and wire strippers.			
13.	Operate bench grinder.			
14.	Operate electric hand drill.			
15.	Operate drill press.			
16.	Cut internal and external threads.			
17.	Cut internal and external threads.			
18.	Use flaring and swaging tools.			
19.	Use refrigeration charging tools.			
20.	Use flywheel pullers.			
21.	Use pump service tools.			
22.	Use hand truck.			
23.	Use dollie.			
24.				

TASK INVENTORY

FOR APPLIANCE REPAIRER

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	25.			
C.	Soldering, Brazing and Welding			
	Soft Soldering			
	1. Fit parts and clean surfaces.			
	2. Apply flux.			
	3. Operate soldering gun, copper or torch.			
	4. Clean joints (flux).			
	5.			
	6.			
	Brazing			
	7. Fit mating parts and establish clearances.			
	8. Clean metal.			
	9. Assemble and support parts.			
	10. Apply flux.			
	11. Adjust regulator.			
	12. Light torch.			
	13. Adjust flame.			
	14. Braze mild steel.			
	15. Braze cast iron.			
	16. Silver braze stainless steel.			
	17. Silver braze copper alloys.			
	18. Clean joints (flux).			

TASK INVENTORY

FOR APPLIANCE REPAIRER

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
19. Shut off valve and bleed off acetylene.			
20.			
21.			
Oxyacetylene Welding			
22. Set up and test equipment.			
23. Fit mating parts.			
24. Clamp and support parts.			
25. Select proper rod and torch tips.			
26. Light torch.			
27. Adjust flame.			
28. Weld mild steel.			
29. Weld pipe.			
30. Weld cast iron.			
31. Cut using oxyacetylene.			
32. Form, bend and hardface.			
33.			
34.			
D. Testing Electrical Circuits and Components			
1. Identify electrical components.			
2. Read electrical wiring diagrams.			
3. Use oven tester.			
4. Use thermocouple temperature tester.			

TASK INVENTORY

FOR APPLIANCE REPAIRER

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
5.	Use Ohmmeter.			
6.	Use volt-ohmmeter.			
7.	Use volt-wattmeter.			
8.	Use clamp-on volt ammeter.			
9.	Use test probes.			
10.	Use dial thermometer.			
11.	Use thermistor temperature tester.			
12.	Use time and temperature recorder.			
13.	Use thermostat tester.			
14.	Use sling psychrometer.			
15.	Use closed end manometer.			
16.	Wire circuit and check measurements.			
17.	Check a solenoid valve.			
18.	Check and adjust a thermostat.			
19.	Dismantle, repair and assemble a single-phase motor.			
20.	Check components and wiring of a 24 volt circuit.			
21.	Check components & wiring of a 120 volt circuit.			
22.	Check components and wiring of a 240 volt circuit.			
23.	Test an open type capacitor-start motor.			
24.	Test a capacitor-start hermetic motor.			
25.	Test and operate a capacitor-start capacitor-run hermetic motor.			
26.				

TASK INVENTORY

FOR APPLIANCE REPAIRER

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	27.			
E.	Making Mechanical Repairs			
	1. Identify assembly devices and tools.			
	2. Make flared tube connections.			
	3. Repair soldered or brazed connection.			
	4. Make a swaged tubing connection.			
	5. Make a complete tubing assembly.			
	6. Operate gauge manifold.			
	7. Operate service valves.			
	8. Install and test access valves and process tube adaptors.			
	9. Dismantle, assemble and test external drive piston type compressor.			
	10. Dismaltle, assemble and test an external drive rotary type compressor.			
	11. Install belts and adjust pulleys and belts.			
	12. Measure temperatures.			
	13. Test for leaks.			
	14. Install gauges on an external drive refrigerating system.			
	15. Repair a leak using epoxy compounds.			
	16. Evacuate a system.			
	17. Use a service cylinder.			
	18.			
	19.			

TASK INVENTORY

FOR APPLIANCE REPAIRER

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
F.	Additional Tasks Or General Comments.			

COMPETENCY LISTING FOR

APPLIANCE REPAIRER

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Appliance Repairers. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\overline{X}$
A.	WORKING WITH THE PUBLIC AND CUSTOMER RELATIONS	3.7
1.	Perform service or repairs required.	4.0
2.	Check unit for proper operation.	4.0
3.	Complete the service order.	4.0
4.	Explain malfunction and repairs needed.	3.9
5.	Estimate job costs and explain to customer.	3.7
6.	Clean-up servicing area and unit.	3.7
7.	Obtain customer's signature.	2.7
B.	USING HAND AND POWER TOOLS	2.6
1.	Use screwdrivers.	3.4
2.	Use wrenches, sockets, and nutdrivers.	3.4
3.	Use pliers and wire strippers.	3.1
4.	Use flaring and swaging tools.	3.1
5.	Identify and replace unsafe tools.	2.9
6.	Care for and maintain hand tools.	2.9
7.	Measure with steel rule or tape.	2.9
8.	Operate electric hand drill.	2.7
9.	Use refrigeration charging tools.	2.7
10.	Use chisels.	2.3
11.	Use punches.	2.3
12.	Use hammers and mallets.	2.3
13.	Use hand truck.	2.2
14.	Use dollie.	2.2
15.	Cut metal with hack saw.	2.1
16.	File metal.	2.0
17.	Operate bench grinder.	2.0

		MEAN SCORE, $\bar{X}$
C.	TESTING ELECTRICAL CIRCUITS AND COMPONENTS	2.6
1.	Identify electrical components.	3.3
2.	Check components & wiring of a 120 volt circuit.	3.1
3.	Use dial thermometer.	3.0
4.	Test an open type capacitor-start motor.	3.0
5.	Read electrical wiring diagrams.	2.6
6.	Use test probes.	2.6
7.	Check components and wiring of a 240 volt circuit.	2.5
8.	Use Ohmmeter.	2.4
9.	Use Volt-ohmmeter.	2.4
10.	Use Volt-wattmeter.	2.4
11.	Use time and temperature recorder.	2.4
12.	Check and adjust a thermostat.	2.3
13.	Test a capacitor-start hermetic motor.	2.3
14.	Test and operate a capacitor-start capacitor-run hermetic motor.	2.3
15.	Use clamp-on volt ammeter.	2.1
16.	Use thermistor temperature tester.	2.1
17.	Check a solenoid valve.	2.1
18.	Use oven tester.	2.0
19.	Use thermocouple temperature tester.	2.0
D.	SOLDERING, BRAZING, AND WELDING	2.4
1.	Fit parts and clean surfaces.	2.9
2.	Operate soldering gun, copper or torch.	2.9
3.	Fit mating parts and establish clearances.	2.9
4.	Clean metal.	2.9
5.	Assemble and support parts.	2.6
6.	Apply flux.	2.4
7.	Clean joints (flux).	2.3
8.	Apply flux.	2.3
9.	Silver braze copper alloys.	2.3
10.	Clean joints (flux).	2.3
11.	Shut off valve and bleed off acetylene.	2.3
12.	Light torch.	2.1
13.	Fit mating parts.	2.1
14.	Adjust regulator.	2.0
15.	Adjust flame.	2.0
E.	MAKING MECHANICAL REPAIRS	2.3
1.	Operate gauge manifold.	2.6
2.	Operate service valves.	2.6
3.	Evacuate a system.	2.6
4.	Make flared tube connections.	2.4
5.	Measure temperatures.	2.4
6.	Test for leaks.	2.4
7.	Identify assembly devices and tools.	2.3
8.	Install and test access valves and process tube adaptors.	2.3
9.	Repair soldered or brazed connection.	2.1
10.	Make a swaged tubing connection.	2.1
11.	Install belts and adjust pulleys and belts.	2.1
12.	Use a service cylinder.	2.1

TASK INVENTORY

FOR BUYER

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Communicate			
1. Conduct business by telephone.			
2. Use Telex.			
3. Create atmosphere of cooperation.			
4. Clearly indicate to people exactly what is required.			
5. Establish personal contacts with important suppliers.			
6. Express self at meetings.			
7. Note specific names and obtain personal commitments.			
8. Listen.			
9. Give constructive criticism.			
10. Given direct instructions.			
11. Communicate purchasing policies and procedures.			
12. Convince clients to follow a specific course of action.			
13. Converse in technical terms & jargon of users & vendors.			

TASK INVENTORY

FOR BUYER
PAGE 2

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14.	Establish proper level of contact.			
15.	Tell people off.			
16.				
17.				
B.	Work with others.			
1.	Write telex messages.			
2.	Establish and maintain credibility.			
3.	Establish and maintain rapport with programs.			
4.	Accept criticism.			
5.	Track down information through chains of people.			
6.	Convince clients to use standard procedures.			
7.	Discern and relay important information.			
8.	Spot deceitfulness, lying and stall tactics.			
9.				
10				
C.	Perform administrative duties.			
1.	Operate calculators.			
2.	Amend purchase orders.			
3.	Cancel obsolete purchase orders.			
4.	Maintain and use vendor contact book or file.			
5.	Maintain pricing files.			
6.	Document notes-to-file to confirm conversations.			

TASK INVENTORY

FOR BUYER
PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
7.	Maintain and use individual correspondence files.			
8.	Prepare correspondence.			
9.	Prepare statistical activity reports.			
10.	Write reports.			
11.	Establish procedures for handling items needing repair.			
12.	Supervise clerical support staff.			
13.	Control and allocate order numbers to departments.			
14.	Organize travel and prepare expense reports.			
15.	Establish office systems and practices.			
16.	Draft procedures for supply manual.			
17.				
18.				
D.	Select Sources			
1.	Use Alpha files to obtain information on suppliers.			
2.	Locate sources using trade directories and catalogues.			
3.	Set up and maintain catalogue and directory file.			
4.	Develop and maintain vendor list.			
5.	Determine available northern suppliers.			
6.	Select suppliers by proximity to destination.			
7.	Tender small items to test prices.			
8.	Identify and assess sources by reading professional journals.			
9.	Gather sources by word-of-mouth.			

TASK INVENTORY
FOR BUYER
PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
10.	Select sources by price-quality.			
11.	Use technical experts to identify best products.			
12.	Do rating of competing sources.			
13.	Assess vendor ability to provide parts and service.			
14.	Assess vendor ability to supply.			
15.	Judge reputability of vendors.			
16.	Select sources based on urgency of requirement.			
17.	Evaluate sole-source requests.			
18.	Recommend standardization.			
19.	Identify alternate sources to standardization.			
20.	Select sources for standing offer agreements.			
21	Keep potential alternate suppliers interest.			
22.				
23.				
E.	Order			
1.	Check out acceptable copies or purchase orders.			
2.	Open and prepare summary of tenders.			
3.	Advise unsuccessful bidders.			
4.	Determine procurement action on requisition.			
5.	Ensure commitment of funds.			

TASK INVENTORY

FOR BUYER
PAGE 5

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
6. Determine F. O. B. point.			
7. Use standard tender and p. o. statements.			
8. Determine necessity and amend orders.			
9. Determine length of tender calls.			
10. Determine tax status of items purchased.			
11. Estimate freight costs for capital goods.			
12. Determine tendering procedure to be used.			
13. Determine tenderability of specs.			
14. Determine qualified tenderers.			
15. Analyze and alter specifications.			
16. Recommend best qualified tender.			
17. Write tender and purchase order conditions.			
18. Assess need and extend closing dates.			
19. Recommend and justify other than lowest tender.			
20. Assess and take action on lack of tender response.			
21. Determine scope of tender calls.			
22. Recommend substitutions.			
23. Analyze industry pricing practice and discounts.			
24. Establish specifications.			
25. Compare dissimilar tenders by costs.			
26.			
27.			

TASK INVENTORY

FOR BUYER
PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
F.	Tender			
	1. Prepare and issue purchase orders.			
	2. Determine delegated signing authority.			
	3. Prepare service contracts.			
	4. Keep bring-forward file on tenders.			
	5. Consolidate similar requisitions.			
	6. Evaluate tenders to determine if conditions and terms are met.			
	7. Prepare and maintain closed tender files.			
	8. Determine transportation routing and timing.			
	9. Compare dissimilar tenders by price.			
	10. Tender for standing offer agreements.			
	11. Judge economics of disposing of replaced equipment.			
	12. Identify customs duty status of items.			
	13. Determine degree of northern preference.			
	14.			
	15.			
G.	Monitor materials and warehousing.			
	1. Establish units of issue.			
	2. Specify storage for specific commodities.			
	3. Suggest order quantities.			

TASK INVENTORY

FOR BUYER
PAGE 7

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4.	Ascertain ordering points.			
5.	Suggest when to buy.			
6.	Analyze requests and anticipate duplications.			
7.	Read revolving fund balance statements.			
8.	Work within revolving fund budget.			
9.	Suggest items to be stocked.			
10.	Negotiate stores inventory.			
11.	Catalogue.			
12.	Reconcile inventories.			
13.	Supervise physical inventory taking.			
14.	Recommend disposal of obsolete or surplus material.			
15.				
16.				
H.	Protect Employer's interests.			
1.	Resist being drawn into unethical positions.			
2.	Proofread tenders and orders.			
3.	Work within purchasing policies and regulations.			
4.	Work within tendering policies and regulations.			
5.	Recognize attempts to circumvent policies.			
6.	Recognize abuses of requisitioning authority.			
7.	Recognize potential conflicts of interests.			
8.	Protect self from political pressure to select sources.			

TASK INVENTORY
FOR BUYER
PAGE 8

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
9.	Read and apply sale of goods ordinance.			
10.	Recognize attempts to circumvent contracts and tenders.			
11.	Mediate between users and suppliers.			
12.	Obtain rulings or legal advise on how to proceed with recourse.			
13.	Recommend new policies to cover loopholes.			
14.				
15.				
I.	Negotiate			
1.	Document and report progress of negotiations.			
2.	Negotiate service contracts.			
3.	Negotiate terms and conditions.			
4.	Say no.			
5.	Finalize agreement.			
6.	Accept rejection.			
7.	Make concessions and trade off.			
8.	Decide on plan of attack for negotiations.			
9.	Set up and conduct negotiation meetings.			
10.	Negotiate sole-source purchases.			
11.	Negotiate terms of contracts.			

TASK INVENTORY

FOR BUYER
PAGE 9

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
12.	Establish ground rules for negotiations.			
13.	Negotiate consignment shipments.	✓		
14.				
15.				
J.	Expedite			
1.	Trace goods.			
2.	Confirm receipt of orders.			
3.	Keep client departments informed of delivery status.			
4.	Plan and follow own follow-up procedure.			
5.	Persuade vendors to meet requirements.			
6.	Cancel and reprocess orders.			
7.	Keep tabs on vendor and carrier performance.			
8.	Interpret manifests and other shipping documents.			
9.	Identify items requiring expediting.			
10.	Establish logical pattern for shipments.			
11.	Consolidate similar shipments.			
12.	Prepare routing instructions for direct-to-community shipments.			
13.	Select best method of shipping by season.			
14.	Determine alternate routing and method.			
15.	Select intermediate destinations for furtherance.			

TASK INVENTORY

FOR BUYER
PAGE 10

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
16.	Tee up customs clearances.			
17.	Expedite to avoid anticipated price increases.			
18.	Intimidate vendors or suppliers.			
19.				
20.				
K.	Obtain commodity knowledge			
1.	Ask questions about commodities.			
2.	Draw on own personal experience with commodities.			
3.	Identify sources of information on specific commodities.			
4.	Search out historical data in files.			
5.	Obtain historical data from users.			
6.	Explore user problems with products.			
7.	Locate and interpret applicable standards.			
8.	Compare manufacturers specifications.			
9.	Develop and maintain contacts on commodity information.			
10.	Assist user in preparing specifications.			
11.	Extract explicit product information from sales reps.			
12.	Keep abreast of technological change.			
13.	Instigate user tests of commodities.			
14.	Assess size and weight limits for shipping and installation.			

TASK INVENTORY

FOR BUYER
PAGE II

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
15.	Search out and remember usage patterns of major commodities.			
16.	Approach new commodity assignments logically.			
17.	Identify incorrect specifications to meet end functions.			
18.	Transcribe vague user requests into usable specifications.			
19.	Challenge overspecification on requisitions.			
20.	Search out and recommend substitutions.			
21.	Make use of research labs for testing specific commodities.			
22.	Deal with user preferences over apparently equal alternatives.			
23.	Anticipate market changes and problems.			
24.				
25.				
L.	Handle Claims			
1.	Follow up claims.			
2.	Apply pressure for satisfactory settlement of claims.			
3.	Prepare and submit claim documents.			
4.	Deal with claims adjusters.			
5.	Recommend settlements.			

TASK INVENTORY

FOR BUYER
PAGE 12

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
6. Assess validity of claims.			
7. Assess Liability.			
8. Negotiate claim settlements.			
9.			
10.			

M. Additional Tasks or General Comments

COMPETENCY LISTING FOR

BUYER

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed buyers. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\bar{X}$
A.	COMMUNICATE	3.1
1.	Clearly indicate to people exactly what is required.	3.4
2.	Listen.	3.7
3.	Communicate purchasing policies and procedures.	3.7
4.	Give direct instructions.	3.6
5.	Conduct business by telephone.	3.4
6.	Create atmosphere of cooperation.	3.2
7.	Establish personal contacts with important suppliers.	2.9
8.	Give constructive criticism.	2.8
9.	Converse in technical terms and jargon of users and vendors.	2.7
10.	Convince clients to follow a specific course of action.	2.6
11.	Note specific names and obtain personal commitments.	2.6
12.	Express self at meetings.	2.4
13.	Establish proper level of contact.	2.2
B.	PROTECT EMPLOYER'S INTERESTS	3.1
1.	Resist being drawn into unethical positions.	3.9
2.	Protect self from political pressure to select sources.	3.7
3.	Work within purchasing policies and regulations.	3.5
4.	Recognize attempts to circumvent policies.	3.2
5.	Recognize abuses of requisitioning authority.	3.2
6.	Recognize potential conflicts of interests.	3.2
7.	Obtain rulings or legal advise on how to proceed with recourse.	3.2

		MEAN SCORE, $\bar{X}$
8.	Decide on plan of attack for negotiations.	2.1
9.	Work within tendering policies and regulations.	2.9
10.	Recognize attempts to circumvent contracts and tenders.	2.9
11.	Read and apply sale of goods ordinance.	2.4
12.	Recommend new policies to cover loopholes.	2.4
13.	Proofread tenders and orders.	2.3
C.	WORK WITH OTHERS	3.0
1.	Discern and relay important information.	3.7
2.	Spot deceitfulness, lying and stall tactics.	2.7
3.	Track down information through chains of people.	3.4
4.	Establish and maintain rapport with programs.	3.0
5.	Establish and maintain credibility.	2.9
6.	Accept criticism.	2.9
7.	Convince clients to use standard procedures.	2.6
D.	PERFORM ADMINISTRATIVE DUTIES	2.8
1.	Amend purchase orders.	3.6
2.	Document notes-to-file to confirm conversations.	3.6
3.	Cancel obsolete purchase orders.	3.4
4.	Maintain and use vendor contact book or file.	3.0
5.	Operate calculators.	2.6
6.	Prepare statistical activity reports.	2.4
7.	Control and allocate order numbers to departments.	2.3
8.	Write reports.	2.2
9.	Maintain and use individual correspondence files.	2.0
E.	SELECT SOURCES	2.7
1.	Select sources based on urgency of requirements.	3.3
2.	Judge reputability of vendors.	3.2
3.	Evaluate sole-source requests.	3.2
4.	Assess vendor ability to provide parts and service.	3.1
5.	Select sources by price-quality.	3.1
6.	Locate sources using trade directories and catalogues.	3.1

		MEAN SCORE, $\bar{X}$
7.	Assess vendor ability to supply.	3.0
8.	Set up and maintain catalogue and directory file.	2.6
9.	Use technical experts to identify best products.	2.4
10.	Keep potential alternate suppliers interest.	2.3
11.	Develop and maintain vendor list.	2.3
12.	Select suppliers by proximity to destination.	2.1
13.	Do rating of competing sources.	2.1
14.	Use Alpha files to obtain information on suppliers.	2.0
15.	Select sources for standing offer agreements.	2.0
F.	TENDER	2.6
1.	Prepare and issue purchase orders.	3.3
2.	Determine delegated signing authority.	3.0
3.	Evaluate tenders to determine if conditions and terms are met.	2.9
4.	Compare dissimilar tenders by price.	2.6
5.	Consolidate similar requisitions.	2.2
6.	Determine transportation routing and timing.	2.2
7.	Tender for standing offer agreements.	2.2
8.	Prepare service contracts.	2.1
G.	OBTAIN COMMODITY KNOWLEDGE	2.6
1.	Ask questions about commodities.	3.4
2.	Identify sources of information on specific commodities.	3.2
3.	Deal with user preferences over apparently equal alternatives.	3.1
4.	Extract explicit product information from sales representatives.	3.1
5.	Draw on own personal experience with commodities.	3.0
6.	Transcribe vague user requests into usable specifications.	2.9
7.	Search out and recommend substitutions.	2.9
8.	Compare manufacturers specifications.	2.8
9.	Identify incorrect specifications to meet end functions.	2.7
10.	Keep abreast of technological change.	2.7
11.	Assist user in preparing specifications.	2.7

		MEAN SCORE, $\bar{X}$
12.	Search out historical data in files.	2.6
13.	Explore user problems with products.	2.6
14.	Obtain historical data from users.	2.4
15.	Search out and remember usage patterns of major commodities.	2.4
16.	Develop and maintain contacts on commodity information.	2.3
17.	Anticipate market changes and problems.	2.3
18.	Assess size and weight limits for shipping and installation.	2.2
19.	Approach new commodity assignments logically.	2.2
20.	Instigate user tests of commodities.	2.1
21.	Locate and interpret applicable standards.	2.0
22.	Challenge overspecification on requisitions.	2.0
H.	ORDER	2.5
1.	Determine tax status of items purchased.	3.2
2.	Recommend best qualified tender.	3.0
3.	Determine F. O. B. point.	3.0
4.	Determine necessity and amend orders.	2.9
5.	Determine procurement action on requisition.	2.9
6.	Analyze industry pricing practice and discounts.	2.8
7.	Recommend substitutions.	2.7
8.	Compare dissimilar tenders by costs.	2.6
9.	Assess need and extend closing dates.	2.6
10.	Determine tenderability of specs.	2.6
11.	Open and prepare summary of tenders.	2.4
12.	Determine qualified tenderers.	2.4
13.	Analyze and alter specifications.	2.4
14.	Assess and take action on lack of tender response.	2.4
15.	Determine scope of tender calls.	2.4
16.	Use standard tender and p. o. statements.	2.3
17.	Write tender and purchase order conditions.	2.3
18.	Establish specifications.	2.3
19.	Ensure commitment of funds.	2.2
20.	Determine tendering procedure to be used.	2.1
21.	Recommend and justify other than lowest tender.	2.1
22.	Determine length of tender calls.	2.0
23.	Estimate freight costs for capital goods.	2.0

		MEAN SCORE, $\bar{X}$
I.	NEGOTIATE	2.5
1.	Finalize agreement.	3.1
2.	Negotiate terms and conditions.	3.0
3.	Say No.	2.7
4.	Accept rejection.	2.6
5.	Negotiate sole-source purchases.	2.4
6.	Document and report progress of negotiations.	2.1
7.	Make concessions and trade off.	2.1
8.	Decide on plan of attach for negotiations.	2.1
J.	EXPEDITE	2.3
1.	Keep client departments informed of delivery status.	2.7
2.	Cancel and reprocess orders.	2.7
3.	Persuade vendors to meet requirements.	2.4
4.	Trace goods.	2.3
5.	Confirm receipt of orders.	2.3
6.	Plan and follow own follow-up procedure.	2.3
7.	Identify items requiring expediting.	2.3
8.	Prepare routing instructions for direct-to-community shipments.	2.2
9.	Select best method of shipping by season.	2.1
10.	Keep tabs on vendor and carrier performance.	2.0
11.	Establish logical pattern for shipments.	2.0

TASK INVENTORY

FOR COMPUTER OPERATOR

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Supervising Data Service			
1. Analyze company operations for beneficial use of the computer.			
2. Analyze data processed for modification and/or combination reports.			
3. Analyze functional area reports for error correction.			
4. Assist in planning facility modification.			
5. Assist with data processing facility staffing.			
6. Consult with supervisors concerning problem areas.			
7. Coordinate activities with data control unit.			
8. Determine destruction dates of computer files.			
9. Handle special requests for data processing services.			
10. Update training records for data services personnel.			
11. Make periodic checks to clarify correctness of output.			
12. Monitor compliance with machine utilization log procedures.			
13. Monitor the meeting of deadlines.			

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14.	Notify appropriate person or office of new or revised reporting requirements.			
15.	Orient newly assigned data service personnel.			
16.	Plan and schedule routine data services work assignments.			
17.	Prepare correspondence concerning data services.			
18.				
19.				
B.	Supervising Automatic Data Processing Operations			
1.	Assign priorities to computer jobs.			
2.	Brief oncoming shift supervisor.			
3.	Coordinate scheduling of machine work load.			
4.	Determine cause of faulty output.			
5.	Develop computer operating instructions.			
6.	Maintain operating manuals and directives affecting machine room functions.			
7.	Maintain records of machine performance.			
8.	Monitor jobs processed and pending.			
9.	Orient new operators to basic services offered by the data processing center.			
10.	Conduct on-the job training in equipment operations.			
11.	Instruct new operators in the use of operations manuals.			
12.				
13.				

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
C.	Performing Data Control Functions			
1.	Analyze data processed to make sure that desired information is obtained.			
2.	Analyze documentation for completeness and accuracy.			
3.	Arrange reruns to correct final output.			
4.	Balance output data.			
5.	Check error with appropriate staff and arrange for correction.			
6.	Control basic input into data processing system.			
7.	Coordinate functions of data control with operations.			
8.	Distribute printed output to users.			
9.	Develop procedures relative to computer input and output.			
10.	Maintain files pertaining to data systems.			
11.	Plan card layouts.			
12.	Code input data for computer entry.			
13.	Provide input on jobs to operations unit.			
14.	Release jobs for processing.			
15.	Schedule keypunching.			
16.	Screen cards for errors and initiate corrections.			
17.	Store cards that have been removed from machine.			
18.	Train personnel in methods of handling output.			
19.				
20.				

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
D.	Preparing for Computer Processing Operations			
1.	Clear memory on computer.			
2.	Determine the availability of the peripheral devices needed for a specific job.			
3.	Determine the forms needed for job.			
4.	Determine priority of jobs to be run on the computer.			
5.	Determine steps in running a job.			
6.	Determine type of information needed to run a job.			
7.	Locate tapes in storage.			
8.	Power up computer and I/O devices.			
9.	Receive turnover on jobs from another shift.			
10.	Schedule peripheral devices to be used for jobs.			
11.				
12.				
E.	Operating Electronic Computers			
1.	Activate reader to read job into the system.			
2.				
3.				
F.	Preparing for Computer Processing Operations			
1.	Check JCL to see that it corresponds to the job to be run.			
2.				
3.				

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 5

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
G.	Operating Electronic Computers			
1.	Check output materials to determine that work is complete.			
2.	Catalog card input.			
3.	Communicate with the computer through the console.			
4.	Determine cause of incorrect output.			
5.	Determine cause of a machine malfunction.			
6.	Initialize disk pack.			
7.	Initialize tape.			
8.	Load the supervisor.			
9.	Interpret display lights on computer.			
10.	Load JCL cards and input data into reader.			
11.	Load programs.			
12.	Make necessary changes in JCL cards.			
13.	Observe for abnormal termination of job.			
14.	Observe for faulty output.			
15.	Observe for verification printouts which indicate end of job or job steps.			
16.	Perform halt/restart procedures.			
17.	Reload the supervisor.			
18.	Remove JCL cards from job deck.			
19.	Remove output from machine.			
20.	Run test of new program for systems/programming.			
21.	Set control switches on central processor.			

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	22. Set load unit address.			
	23. Use a sort-merge utility program to sort cards.			
	24. Utilize operator's manuals.			
	25. Utilize utility program.			
	26.			
	27.			
H.	Operating Computer Peripheral Equipment			
	1. Assign disk drives to appropriate logical address.			
	2. Determine proper forms for printer.			
	3. Determine carriage tape needed to control spacing/skipping of printer.			
	4. Load cards into card reader or card punch.			
	5. Load continuous forms in printer.			
	6. Load paper tape on paper tape reader.			
	7. Operate card reader or card punch.			
	8. Operate disk drive.			
	9. Perform peripheral conversion operations.			
	10. Place carriage control tape in printer.			
	11. Punch carriage tapes to control skipping and spacing of forms.			
	12. Adjust print density.			
	13.			
	14.			

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 7

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
I.	Operating Unit Record Equipment			
	1. Correct cards on the keypunch.			
	2. Keypunch cards from source documents.			
	3. Load card hopper.			
	4. Mount program card on drum of keypunch machine.			
	5. Operate interpreter to print data on punched cards.			
	6. Operate reproducer to gangpunch cards.			
	7. Operate reproducer to reproduce cards.			
	8. Operate sorter for alphabetic sorting.			
	9. Operate sorter for numeric sorting.			
	10. Operate sorter to select specified cards.			
	11. Punch Program card for keypunching from source document.			
	12. Reproduce cards on the keypunch.			
	13. Select specified wired control panel for use.			
	14. Set up keypunch machine for punching cards.			
	15. Verify cards to check accuracy of keypunching.			
	16. Visually interpret punched cards.			
	17. Wire interpreter control panel.			
	18. Wire reproducer control panel.			
J.	Maintaining equipment and records.			
	1. Clear card jams.			
	2. Cut tape and position new load point marker.			

TASK INVENTORY

FOR COMPUTER OPERATOR

PAGE 8

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
3.	Handle service calls on equipment.			
4.	Maintain card files for JCL cards.			
5.	Maintain computer log.			
6.	Maintain files on procedural changes.			
7.	Perform routine housekeeping duties.			
8.	Perform routine operator maintenance on machines.			
9.	Place cards, tape, or disk packs in storage.			
10.	Prepare external labels for cataloging files.			
11.	Separate printed output forms using decollator.			
12.				
13.				
K.	Additional tasks or general comments.			

COMPETENCY LISTING FOR

COMPUTER OPERATOR

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Computer Operators. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE $\bar{X}$
A.	PREPARE FOR COMPUTER PROCESSING OPERATIONS	3.1
1.	Power up computer and I/O devices.	3.5
2.	Locate tapes in storage.	3.4
3.	Determine steps in running a job.	3.3
4.	Determine the forms needed for job.	3.1
5.	Determine priority of jobs to be run on the computer.	3.0
6.	Clear memory on computer.	2.9
7.	Receive turnover on jobs from another shift.	2.9
8.	Schedule peripheral devices to be used for jobs.	2.9
9.	Determine the availability of the peripheral devices needed for a specific job.	2.8
B.	MAINTAIN EQUIPMENT AND RECORDS	3.0
1.	Cut tape and position new load point marker.	3.4
2.	Perform routine operator maintenance on machines.	3.4
3.	Clear card jams.	3.3
4.	Perform routine housekeeping duties.	3.0
5.	Place cards, tape, or disk packs in storage.	3.0
6.	Handle service calls on equipment.	2.8
7.	Maintain computer log.	2.8
8.	Prepare external labels for cataloging files.	2.4

			MEAN SCORE $\bar{X}$
C.	OPERATE COMPUTER PERIPHERAL EQUIPMENT		3.0
1.	Load cards into card reader or card punch.	3.5	
2.	Load continuous forms in printer.	3.5	
3.	Operate card reader or card punch	3.5	
4.	Operate disk drive.	2.8	
5.	Determine carriage tape needed to control spacing/skipping of printer.	2.4	
6.	Determine proper forms for printer.	2.0	
D.	OPERATE ELECTRONIC COMPUTERS		2.9
1.	Activate reader to read job into the system.	2.9	
E.	PREPARE FOR COMPUTER PROCESSING OPERATIONS		2.9
1.	Check JCL to see that it corresponds to the job to be run.		2.9
F.	SUPERVISE AUTOMATIC DATA PROCESSING OPERATIONS		2.9
1.	Coordinate scheduling of machine work load.	3.5	
2.	Conduct on-the-job training in equipment operations.	3.4	
3.	Maintain records of machine performance.	3.3	
4.	Assign priorities to computer jobs.	3.0	
5.	Determine cause of faulty output.	3.0	
6.	Monitor jobs processed and pending.	3.0	
7.	Instruct new operators in the use of operations manuals.	3.0	
8.	Brief oncoming shift supervisor.	2.5	
9.	Orient new operators to basic services offered by the data processing center.	2.4	
10.	Develop computer operating instructions.	2.1	
G.	OPERATE ELECTRONIC COMPUTERS		2.8
1.	Communicate with the computer through the console.	3.5	
2.	Determine cause of a machine malfunction.	3.4	
3.	Initialize tape.	3.3	

MEAN SCORE $\bar{X}$

G. Continued

4.	Set control switches on central processor.	3.1
5.	Utilize operator's manuals.	3.1
6.	Make necessary changes in JCL cards.	3.0
7.	Load the supervisor.	2.9
8.	Interpret display lights on computer.	2.9
9.	Load JCL cards and input data into reader.	2.9
10.	Load programs.	2.9
11.	Perform halt/restart procedures.	2.9
12.	Reload the supervisor.	2.9
13.	Remove output from machine.	2.9
14.	Run test of new program for systems/ programming.	2.9
15.	Utilize utility program.	2.9
16.	Observe for abnormal termination of job.	2.6
17.	Observe for verification printouts which indicate end of job or job steps.	2.6
18.	Check output materials to determine that work is complete.	2.4
19.	Initialize disk pack.	2.4
20.	Determine cause of incorrect output.	2.3
21.	Observe for faulty output.	2.3
22.	Remove JCL cards from job deck.	2.3
23.	Set load unit address.	2.0

H. SUPERVISE DATA SERVICE 2.7

1.	Consult with supervisors concerning problem areas.	3.5
2.	Handle special requests for data processing services.	3.5
3.	Monitor the meeting of deadlines.	2.8
4.	Make periodic checks to clarify correctness of output.	2.5
5.	Monitor compliance with machine utilization log procedures.	2.4
6.	Assist in planning facility modification.	2.1
7.	Determine destruction dates of computer files.	2.0

		MEAN SCORE $\overline{X}$
I.	PERFORM DATA CONTROL FUNCTIONS	2.5
	1. Distribute printed output to users. 2.8	
	2. Arrange reruns to correct final output. 2.6	
	3. Train personnel in methods of handling output. 2.0	
J.	OPERATE UNIT RECORD EQUIPMENT	2.3
	1. Correct cards on the keypunch. 2.3	

TASK INVENTORY

FOR COMPUTER PROGRAMMER

INSTRUCTIONS.

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A.	Performing Programming Activities			
1.	Analyze computer inputs prior to test runs & follow-ups.			
2.	Analyze programming documentation.			
3.	Analyze programs, evaluations, reviews or reports for problem identification.			
4.	Audit computer inputs after test runs and follow-ups.			
5.	Code application utility programs.			
6.	Code computer applications using a reports program generator.			
7.	Code disk sort programs.			
8.	Code routine computer programs.			
9.	Confer with functional area personnel to prepare specific program routines.			
10.	Debug programs.			
11.	Design or lay out disk storage formats.			
12.	Design or lay out magnetic tape storage formats.			
13.	Design report formats.			

TASK INVENTORY

FOR COMPUTER PROGRAMMER

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14.	Desk check or debug programs after assembly or compilation.			
15.	Desk check programming logic and keying errors prior to assembly or compilation.			
16.	Determine most applicable programming languages for problems.			
17.	Determine tape and disk input/output blocking factors.			
18.	Develop computer operating instructions or technical bulletins.			
19.	Develop operational procedures for programs.			
20.	Develop program documentation to explain how programs work.			
21.	Develop subroutines.			
22.	Exploit parallel processing capabilities to gain operational effectiveness.			
23.	Extract data needed for special analyses and studies.			
24.	Incorporate standard routines into programs.			
25.	Incorporate utility routines into programs.			
26.	Integrate planned routines with the overall programming systems (segmenting).			
27.	Isolate & correct programming errors discovered during testing.			
28.	Maintain & update library of programs and programming documentation.			
29.	Maintain library of documentation of general purpose and utility programs.			
30.	Optimize computer programs for effective use of auxiliary storage media.			
31.	Optimize computer programs for efficient use of logical and arithmetical components.			
32.	Optimize computer programs for effective use of memory.			
33.	Patch computer programs.			
34.	Perform program analyses.			
35.	Prepare console operator's run books.			
36.	Prepare control card sheets for utility or library programs.			

TASK INVENTORY

FOR COMPUTER PROGRAMMER

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
37.	Prepare control decks.			
38.	Prepare detail flow charts.			
39.	Prepare documentation including formats and layouts for input and output media.			
40.	Prepare general flow charts and/or hipo charts.			
41.	Prepare programming block diagrams.			
42.	Program interactively.			
43.	Read and interpret regulations manuals, or administrative orders.			
44.	Recommend corrections or modifications to systems.			
45.	Review completed programs for accuracy.			
46.	Review detail flow charts prior to preparation of programs.			
47.	Review existing routines for applicability of new techniques.			
48.	Review processing steps before jobs are run on computers.			
49.	Revise computer programs.			
50.	Select appropriate utility programs and subroutines.			
51.	Test new computer programs.			
52.	Test revised computer programs.			
53.	Update current source programs.			
54.	Write cobol programs.			
55.	Write programs for inquiry routines.			
56.	Write programs for on-line use.			
57.	Write programs for the generation of data to be used for program testing.			
58.	Write programs that write tapes.			
59.	Write programs that read cards.			

TASK INVENTORY

FOR COMPUTER PROGRAMMER

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	60.			
	61.			
B.	Operating Data Processing Equipment			
	1. Analyze job steps to determine data recovery points.			
	2. Analyze machine operations through use of messages received from the equipment.			
	3. Analyze machine operations through use of conditions displayed.			
	4. Determine causes of machine stops and malfunctions.			
	5. Load programs and data cards.			
	6. Locate tapes in storage media or tape library.			
	7. Maintain data files.			
	8. Operate card readers.			
	9. Operate consoles.			
	10. Operate keypunches.			
	11. Perform map/linkage functions.			
	12. Perform tape-to-printer operations.			
	13. Screen reports, cards or programs for obvious errors and initiate corrections.			
	14. Select and mount disks.			
	15. Select and mount tapes.			
	16. Set up computers for operation.			
	17.			
	18.			
C.	Performing Systems Activities			
	1. Coordinate flow of data from one report to another.			

TASK INVENTORY

FOR COMPUTER PROGRAMMER

PAGE 5

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
2.	Coordinate programming requirements with machine configurations.			
3.	Coordinate with operations personnel on preparation of computer operating instructions.			
4.	Coordinate with operators/programmers, or systems personnel on matters of joint interest.			
5.	Coordinate with systems designers on programming aspects of new systems.			
6.	Coordinate with users on programming aspects of reports being developed.			
7.	Coordinate with users on programming aspects of new systems being devised.			
8.	Coordinate with users on programming aspects of reports being developed.			
9.	Coordinate with users to determine output requirements.			
10.	Determine sizes and time elements of processing runs.			
11.	Develop standard data elements and codes for users.			
12.	Evaluate data for duplication and unnecessary requirements.			
13.	Evaluate data for relationship of outputs to source documents.			
14.	Evaluate file contents and sequences.			
15.	Evaluate problem areas adaptable to modifications.			
16.	Identify data interface requirements.			
17.	Identify problem areas in the applications.			
18.	Identify source documents, internal files and final reports.			
19.				
20.				
D.	Performing Other Data Processing Functions.			
1.	Arrange reruns and special checks to proof final outputs.			
2.	Audit data systems or functional area reports.			
3.	Check errors with users, correct and resubmit.			

TASK INVENTORY

FOR COMPUTER PROGRAMMER

PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4.	Compare data arithmetically with predetermined control totals.			
5.	Contact functional areas for submission and evaluation of data.			
6.	Initiate procedures for preparation of inputs to computers.			
7.	Maintain files of reports, regulations, or directives pertaining to data.			
8.	Process requests for new or revised reports.			
9.				
10.				
E.	Additional Tasks or General Comments			

COMPETENCY LISTING FOR

COMPUTER PROGRAMMER

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Computer Programmers. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE $\overline{X}$
A.	PERFORM PROGRAMMING ACTIVITIES	2.6
1.	Debug programs.	3.3
2.	Desk check or debug programs after assembly or compilation.	3.1
3.	Isolate & correct programming errors discovered during testing.	3.1
4.	Program interactively.	3.1
5.	Test revised computer programs.	3.1
6.	Analyze programming documentation.	3.0
7.	Develop program documentation to explain how programs work.	3.0
8.	Test new computer programs.	3.0
9.	Revise computer programs.	3.0
10.	Maintain & update library of programs and programming documentation.	2.9
11.	Recommend corrections or modifications to systems.	2.9
12.	Select appropriate utility programs and subroutines.	2.8
13.	Incorporate standard routines into programs.	2.8
14.	Desk check programming logic and keying errors prior to assembly or compilation.	2.8
15.	Confer with functional area personnel to prepare specific program routines.	2.8
16.	Analyze programs, evaluations, reviews or reports for problem identification.	2.7
17.	Incorporate utility routines into programs.	2.7
18.	Write programs that write tapes.	2.7
19.	Develop operational procedures for programs.	2.5
20.	Develop subroutines.	2.5
21.	Code application utility programs.	2.4
22.	Write programs for on-line use.	2.4

		MEAN SCORE $\bar{X}$
A.	Continued	
23.	Review completed programs for accuracy.	2.3
24.	Update current source programs.	2.3
25.	Design or lay out disk storage formats.	2.2
26.	Design or lay out magnetic tape storage formats.	2.2
27.	Prepare programming block diagrams.	2.2
28.	Code routine computer programs.	2.1
29.	Maintain library of documentation of general purpose and utility programs.	2.1
30.	Perform program analyses.	2.1
31.	Analyze computer inputs prior to test runs & follow-ups.	2.0
32.	Optimize computer programs for effective use of memory.	2.0
33.	Prepare general flow charts and/or hipo charts.	2.0
B.	PERFORM SYSTEMS ACTIVITIES	2.4
1.	Coordinate with operators/programmers, or systems personnel on matters of joint interest.	2.8
2.	Coordinate with users to determine output requirements.	2.8
3.	Coordinate with users on programming aspects of new systems being devised.	2.4
4.	Coordinate with systems designers on programming aspects of new systems.	2.2
5.	Coordinate with operations personnel on preparation of computer operating instructions.	2.0
6.	Coordinate with users on programming aspects of reports being developed.	2.0
C.	OPERATE DATA PROCESSING EQUIPMENT	2.1
1.	Analyze machine operations through use of messages received from the equipment.	2.1

TASK INVENTORY

DIESEL TRUCK MECHANIC

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Maintaining and Repairing Engines			
1. Rebuilt Short Block			
2. Recondition Cylinder Head			
3. Inspect and Service Lube Oil System			
4. Assemble Engine			
5. Remove and Replace Engine			
6. Inspect and Service Blower			
7.			
8.			
B. Maintaining and Repairing Fuel Systems			
1. Inspect and Service Fuel Tank and Lines			
2. Test and Service Fuel Pump (Gas)			
3. Test and Service Fuel Pump (Diesel)			
4. Inspect and Service Carburetor			

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
5.	Inspect and Service Fuel Injectors			
6.	Inspect and Service Governors			
7.				
8.				
C.	Maintaining and Repairing Electrical Systems			
1.	Inspect and Service Battery and Primary Wiring			
2.	Inspect and Service Starter and Switches			
3.	Inspect and Service Charging Circuit			
4.	Inspect and Service Ignition System			
5.	Inspect and Service Lighting Circuits			
6.	Inspect and Service Electric Shift Mechanism			
7.	Inspect and Service Electrical Accessories			
8.				
9.				
D.	Maintaining and Repairing Cooling System			
1.	Inspect and Service Coolant			
2.	Inspect and Service Belts and Hoses *			
3.	Check and Service Water Pump			
4.	Inspect and Service Radiator and Cap			
5.	Test and Replace Thermostat			
6.	Service Water Filter and Inhibitor			
7.	Inspect and Service Shutterstat and Shutters			

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
8.	Inspect and Service Heater			
9.	Inspect and Service Fan			
10.				
11.				
E.	Maintaining and Repairing Brake Systems			
1.	Reline Brakes (Hydraulic)			
2.	Inspect and Service Power Units and Master Cylinder			
3.	Inspect and Service Lines (Hydraulic)			
4.	Reline Brakes (Air)			
5.	Inspect and Service Air Valves, Lines & Reservoir			
6.	Inspect and Service Air Compressor and Governor			
7.	Inspect and Service Anti-Skid System			
8.	Inspect and Service Air Chambers			
9.	Inspect and Service Parking Brake (Manual)			
10.				
11.				
F.	Maintaining and Repairing Driveline			
1.	Inspect and Service Clutch			
2.	Service and Repair Transmission (Manual)			
3.	Service and Repair Transmission (Automatic)			
4.	Inspect and Service Shift Mechanism			
5.	Inspect and Service Driveshaft and Joints			

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
6.	Service and Repair Differential (Single-Speed)			
7.	Service and Repair Differential (Two-Speed)			
8.	Service and Repair Power Divider			
9.	Inspect and Service Axle			
10.	Service and Repair Power Take-Off			
11.				
12.				
G.	Maintaining and Repairing Steering Systems			
1.	Service and Repair Manual Steering Box			
2.	Service and Repair Power Steering (Hydraulic)			
3.	Service and Repair Air Assist Steering			
4.	Inspect and Service Steering Linkages			
5.				
6.				
H.	Maintaining and Repairing Suspension			
1.	Inspect and Replace Leaf Springs			
2.	Inspect and Replace Coil Springs and Shocks			
3.	Inspect and Replace Ball Joints			
4.	Repair and Service King Pins and Bushings			
5.	Inspect and Service Torque Arms and Beams			
6.	Inspect and Repair Air Suspension			
7.	Inspect and Replace Torsion Bars			

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 5

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	8.			
	9.			
I.	Maintaining and Repairing Exhaust Systems			
	1. Inspect and Replace Muffler			
	2. Inspect and Replace Exhaust Pipes			
	3. Inspect and Replace Exhaust Manifolds			
	4. Inspect and Service Turbocharger			
	5.			
	6.			
J.	Maintaining and Repairing Hydraulic Systems			
	1. Service and Repair Hydraulic Pumps			
	2. Inspect and Repair Hydraulic Lines and Reservoirs			
	3. Inspect and Repair Hydraulic Control Valves			
	4. Service and Repair Hydraulic Cylinders			
	5.			
	6.			
K.	Maintaining and Repair Transport Refrigeration and Air Conditioning Systems			
	1. Inspect and Repair Refrigeration Compressor			
	2. Test and Charge R-12			
	3. Inspect and Repair Drive Clutch			
	4. Maintain and Service Auxilary Engine			
	5. Inspect and Service Condensing Unit			

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
6.	Inspect and Service Controls			
7.				
8.				
L.	Maintaining and Repairing Chassis Components			
1.	Inspect and Service Fifth Wheel and King Pin			
2.	Inspect and Service Landing Gear			
3.	Inspect and Service Slider (Tandem)			
4.				
5.				
M.	Maintaining and Repair Cab and Accessories			
1.	Inspect and Service Doors			
2.	Inspect and Service Windows			
3.	Inspect and Service Hood			
4.	Inspect and Service Seat			
5.	Inspect and Service Ventilators			
6.	Inspect and Service Mirrors			
7.	Inspect and Service Speedometer and Tachometer			
8.				
9.				

TASK INVENTORY

DIESEL TRUCK MECHANIC

PAGE 7

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
M.	Additional Tasks or General Comments			

COMPETENCY LISTING FOR

DIESEL TRUCK MECHANIC

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed diesel mechanics. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

			MEAN SCORE $\overline{X}$
A.	MAINTAIN AND REPAIR FUEL SYSTEMS		3.2
1.	Test and service diesel fuel pump.	3.5	
2.	Inspect and service fuel injectors.	3.3	
3.	Inspect and service governors.	3.1	
4.	Inspect and service fuel tank and lines.	2.8	
B.	MAINTAIN AND REPAIR ENGINES		3.1
1.	Assemble engine.	3.5	
2.	Remove and replace engine.	3.5	
3.	Recondition cylinder head.	3.3	
4.	Inspect and service lube oil system.	2.9	
5.	Rebuild short block.	2.4	
C.	MAINTAIN AND REPAIR HYDRAULIC SYSTEMS		2.9
1.	Service and repair hydraulic pumps.	2.9	
2.	Inspect and repair hydraulic lines and reservoirs.	2.9	
3.	Inspect and repair hydraulic control valves.	2.9	
4.	Service and repair hydraulic cylinders.	2.9	
D.	MAINTAIN AND REPAIR COOLING SYSTEM		2.8
1.	Inspect and service coolant.	3.3	
2.	Inspect and service belts and hoses.	3.2	
3.	Check and service water pump.	3.2	
4.	Test and replace thermostat	3.2	
5.	Inspect and service radiator and cap.	3.1	
6.	Service water filter and inhibitor.	2.3	
7.	Inspect and service fan.	2.3	
8.	Inspect and service shutterstat and shutters.	2.1	

		MEAN SCORE $\bar{X}$
E.	MAINTAIN AND REPAIR ELECTRICAL SYSTEMS	2.8
1.	Inspect and service charging circuit.	3.2
2.	Inspect and service battery and primary wiring.	3.1
3.	Inspect and service starter and switches.	3.1
4.	Inspect and service lighting circuits.	2.8
5.	Inspect and service electrical accessories.	2.8
6.	Inspect and service electric shift mechanism.	2.4
7.	Inspect and service ignition system.	2.2
F.	MAINTAIN AND REPAIR DRIVELINE	2.7
1.	Service and repair automatic transmission.	3.4
2.	Inspect and service shift mechanism.	3.4
3.	Inspect and service clutch.	3.0
4.	Inspect and service driveshaft and joints.	3.0
5.	Service and repair differential (single-speed).	2.6
6.	Service and repair power take-off.	2.4
7.	Service and repair manual transmission.	2.3
8.	Service and repair power divider.	2.3
9.	Inspect and service axle.	2.1
G.	MAINTAIN AND REPAIR EXHAUST SYSTEMS	2.7
1.	Inspect and service turbocharger.	3.6
2.	Inspect and replace exhaust manifolds.	2.8
3.	Inspect and replace exhaust pipes.	2.3
4.	Inspect and replace muffler.	2.2
H.	MAINTAIN AND REPAIR BRAKE SYSTEMS	2.4
1.	Inspect and service manual parking brake.	2.9
2.	Inspect and service air chambers.	2.8
3.	Inspect and service air valves, lines, and reservoir.	2.7
4.	Inspect and service air compressor and governor.	2.6
5.	Inspect and service power units and master cylinder.	2.2
6.	Inspect and service hydraulic lines.	2.2
7.	Reline air brakes.	2.1
8.	Reline hydraulic brakes.	2.0

		MEAN SCORE $\overline{X}$
I.	MAINTAIN AND REPAIR STEERING SYSTEMS	2.4
	1. Service and repair hydraulic power steering. 2.4	
	2. Inspect and service steering linkages. 2.4	
	3. Service and repair manual steering box. 2.3	
J.	MAINTAIN AND REPAIR CAB ACCESSORIES	2.2
	1. Inspect and service speedometer and tachometer. 2.2	
K.	MAINTAIN AND REPAIR TRANSPORT REFRIGERATION AND AIR CONDITIONING SYSTEMS	2.0
	1. Test and charge R-12. 2.0	

TASK INVENTORY

FOR ELECTRONIC MECHANIC

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Measure physical parameters			
1. Measure lengths and widths.			
2. Measure weights.			
3. Measure temperature.			
4. Make metric measurements (physical).			
5. Measure humidity.			
6. Make thread measurements.			
7. Measure wire sizes.			
8. Measure fluid and gas pressure.			
9. Measure specific gravity.			
10. Measure R.P.M.s.			
11. Measure P^h.			
12. Measure vibrations.			
13.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 2

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14.				
B.	Measure Electrical Parameters.			
1.	Measure currents.			
2.	Measure quality of tubes.			
3.	Measure voltages.			
4.	Measure resistance.			
5.	Measure inductance.			
6.	Measure frequencies.			
7.	Measure capacitance.			
8.	Measure power.			
9.	Measure high voltages.			
10.	Measure ultra low voltages.			
11.	Measure sound level.			
12.	Measure R F voltages.			
13.	Measure F.M. deviation.			
14.	Make measurements using combination of instruments.			
15.	Measure modulation.			
16.	Measure frequency response.			
17.	Measure times.			
18.	Measure signal noise ratios.			
19.	Measure standing wave ratios.			
20.	Measure servo misalignment errors.			
21.	Measure distortion.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 3

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
22.	Measure magnetic field strength.			
23.	Make permeability measurements.			
24.	Measure impedance.			
25.	Interpret wave forms.			
26.	Measure phase relationships.			
27.	Analyze frequency spectrums.			
28.	Perform vector analysis.			
29.				
30.				
C.	Operate Testing Equipment			
1.	Read pointer type meters.			
2.	Handle and position test equipment.			
3.	Select and attach leads and accessories.			
4.	Pre-select measurement ranges.			
5.	Set up test equipment according to manufacturer specifications.			
6.	Operate test equipment to protect equipment under test.			
7.	Use digital type meters.			
8.	Use function generators.			
9.	Use appropriate impedance matching devices.			
10.	Use CRT type instruments.			
11.	Energize equipment using power supplies.			
12.	Ensure correct calibration of test instruments.			
13.	Test operating equipment systems without altering its performance.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 4

	YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14. Cross check indications.			
15. Operate specialized test equipment simulators.			
16.			
17.			
D. Read and Interpret Diagrams and Specifications			
1. Identify symbols.			
2. Identify components.			
3. Identify manufacturers coding methods.			
4. Locate and organize reference material.			
5. Read block diagrams.			
6. Identify circuit types.			
7. Identify component specifications.			
8. Interpret pictorial diagrams.			
9. Interpret wiring diagrams.			
10. Identify signal flow paths.			
11. Read schematic diagrams.			
12. Interpret charts and graphs.			
13. Interpret performance specifications.			
14. Keep abreast with the state of the art.			
15.			
16.			
E. Communicate Effectively			
1. Adhere to communication procedures.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 5

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
2.	Organize files.			
3.	Complete test sheets.			
4.	Complete failure reports.			
5.	Explain things orally.			
6.	Translate graphs into data.			
7.	Identify and order parts.			
8.	Request and obtain services.			
9.	Follow through on inquiries.			
10.	Translate data into graphs.			
11.	Prepare forms.			
12.	Prepare written reports.			
13.	Prepare sketches and drawings.			
14.	Document modifications changes.			
15.	Write business letters memos.			
16.	Establish relationships with customers & associates.			
17.	Translate technical jargon.			
18.	Provide accurate details for contractors.			
19.	Write specifications.			
20.	Assess and report potential modifications.			
21.	Indicate approximate time requirements.			
22.	Delegate authority.			
23.	Train others.			
24.				

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 6

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
25.				
F.	Use and Care for Tools, Equipment and Materials			
1.	Store and protect tools.			
2.	Maintain and store consumable hardware.			
3.	Select and apply tubing and fittings.			
4.	Select size and type of screwdriver required.			
5.	Select and apply appropriate wrenches.			
6.	Select and apply appropriate lubricants.			
7.	Select and apply appropriate pliers.			
8.	Select and use saws, files and cutting tools.			
9.	Maintain soldering appliances.			
10.	Restore cutting edges.			
11.	Use and care for wire strippers.			
12.	Select and use snips,crimping and nibbling tools.			
13.	Select and use sheet metal brakes, punches and shears.			
14.	Select and use appropriate power hand tools.			
15.	Use and care for taps and dies.			
16.	Mix epoxy and potting compounds.			
17.	Select and install appropriate fasteners.			
18.	Use and care for drill presses.			
19.	Use and care for grinders.			
20.	Use and care for cable connector tools.			
21.	Store and use cleaners and solvents.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 7

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
22.	Select and use insulating sleeving and forms.			
23.	Select and apply appropriate adhesives.			
24.	Select and apply appropriate alignment tools.			
25.	Make economic use of all materials.			
26.	Use and care for lathes.			
27.	Specify repairs to be made on tools and equipment by others.			
28.				
29.				
G.	Perform Mathematical Calculations			
1.	Perform arithmetic calculations.			
2.	Use mathematical tables.			
3.	Use calculators.			
4.	Convert units of measurements.			
5.	Perform geometric calculations.			
6.	Perform algebraic calculations.			
7.	Convert Binary, Octal and Decimal Numbers.			
8.	Use and/or orginate truth tables.			
9.				
10.				
H.	Analyze & Troubleshoot Electro-Mechanical Equipment.			
1.	Consult manufacturers manuals.			
2.	Check line voltages and frequency.			
3.	Select appropriate testing equipment			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 8

	YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4. Perform functional checks.			
5. Do performance checks.			
6. Identify faults.			
7. Isolate faulty components.			
8. Identify faulty section.			
9. Interpret test data.			
10.			
11.			
I. Maintain Operational Equipment.			
1. Replace indicator lamps.			
2. Clean equipment.			
3. Identify time expired items.			
4. Test tubes.			
5. Check batteries.			
6. Service air filters.			
7. Lubricate moving parts.			
8. Replace motor brushes.			
9. Check plugs and connectors.			
10. Check securing hardware.			
11. Replace missing parts.			
12. Repaint and relabel equipment.			
13. Do specified maintenance checks.			
14. Identify failing components.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 9

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
15.	Check for environmental integrity.			
16.				
17.				
J.	Modify/Adapt Equipment to Requirements.			
1.	Make special test leads.			
2.	Layout and build circuits.			
3.	Install modifications to existing equipment.			
4.	Construct service extenders, extender cards.			
5.	Assess systems & originate modifications as necessary.			
6.	Construct special tools and jigs.			
7.	Ensure modifications do not degrade other systems.			
8.	Terminate cables in connectors.			
9.	Replace mechanical parts.			
10.	Construct mechanical parts.			
11.	Make notes to facilitate re-assembly.			
12.				
13.				
K.	Repair Electro-Mechanical Equipment.			
1.	Make crimp connections.			
2.	Pack Glands.			
3.	Replenish fluids.			
4.	Make wire wrap connections.			
5.	Remove components from assemblies.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 10

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
6.	Prepare items for shipping.			
7.	Make electrical adjustments.			
8.	Layout and construct cable harnesses.			
9.	Exercise caution around solvents.			
10.	Select and use fire extinguishers.			
11.	Install and adjust machine guards.			
12.	Post appropriate warning signs.			
13.	Organize and store removed parts, fasteners and assoc. hardware.			
14.	Apply soldering techniques.			
15.	Select correct wire and cable size and type.			
16.	Identify physical components.			
17.	Determine suitable substitutes.			
18.	Re-assemble & align mechanical components.			
19.	Re-build complete assemblies.			
20.	Re-assemble & align electrical components.			
21	Repair printed circuit boards.			
22.	Determine section to be removed.			
23.	Determine method of dis-assembly.			
24.	Determine that unit works according to specs. after repair.			
25.				
26.				
L.	Apply Safety Precautions			
1.	Select & use personal safety equipment.			

TASK INVENTORY

FOR ELECTRONIC MECHANIC

PAGE 11

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
2.	Follow safety regulations and procedures.			
3.	Organize and maintain work area.			
4.	Wear protective clothing.			
5.	Remove hazardous personal accessories.			
6.	Adhere to on site safety regulations.			
7.	Select and use ladders.			
8.	Insulate wrenches, screwdrivers, etc.			
9.	Comply with C.S.A. wiring standards.			
10.	Maintain intrinsically safe systems.			
11.	Adhere to radiation safety procedures.			
12.	Maintain alarm safety systems.			
13.	Maintain ground fault detection system.			
14.	Maintain explosion proof system.			
15.	Apply first aid.			
16.				
17.				
M.	Additional Tasks or General Comments			

COMPETENCY LISTING FOR

ELECTRONIC MECHANIC

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Electronic Mechanics. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\overline{X}$
A.	ANALYZE AND TROUBLESHOOT ELECTRO-MECHANICAL EQUIPMENT	3.5
1.	Perform functional checks.	3.8
2.	Identify faults.	3.8
3.	Isolate faulty components.	3.8
4.	Identify faulty section.	3.8
5.	Interpret test data.	3.6
6.	Select appropriate testing equipment.	3.6
7.	Do performance checks.	3.4
8.	Consult manufacturers manuals.	3.0
9.	Check line voltages and frequency.	2.8
B.	MAINTAIN OPERATIONAL EQUIPMENT	3.1
1.	Do specified maintenance checks.	3.6
2.	Replace missing parts.	3.4
3.	Check securing hardware.	3.4
4.	Check plugs and connectors.	3.4
5.	Clean equipment.	3.4
6.	Identify failing components.	3.4
7.	Replace indicator lamps.	3.2
8.	Lubricate moving parts.	2.6
9.	Service air filters.	2.0
C.	OPERATE TESTING EQUIPMENT	3.1
1.	Operate test equipment to protect equipment under test.	3.6
2.	Test operating equipment systems without altering its performance.	3.6
3.	Energize equipment using power supplies.	3.5
4.	Pre-select and attach leads and accessories.	3.2

		MEAN SCORE, $\bar{X}$
5.	Set up test equipment according to manufacturer specifications.	3.4
6.	Handle and position test equipment.	3.2
7.	Select and attach leads and accessories.	3.2
8.	Use digital type meters.	3.2
9.	Use function generators.	3.2
10.	Ensure correct calibration of test instruments.	3.0
11.	Read pointer type meters.	3.0
12.	Use CRT type instruments.	2.8
13.	Cross check indications.	2.8
14.	Use appropriate impedance matching devices.	2.2
15.	Operate specialized test equipment simulators.	2.2
D.	READ AND INTERPRET DIAGRAMS AND SPECIFICATIONS	3.1
1.	Identify components.	3.4
2.	Interpret wiring diagrams.	3.4
3.	Read schematic diagrams.	3.4
4.	Keep abreast with the state of the art.	3.4
5.	Identify symbols.	3.2
6.	Identify manufacturers coding methods.	3.2
7.	Locate and organize reference material.	3.2
8.	Read block diagrams.	3.2
9.	Identify component specifications.	3.0
10.	Identify signal flow paths.	3.0
11.	Interpret performance specifications.	3.0
12.	Identify circuit types.	2.6
13.	Interpret pictorial diagrams.	2.2
E.	MEASURE ELECTRICAL PARAMETERS	2.9
1.	Measure voltages.	3.6
2.	Measure resistance.	3.6
3.	Measure frequencies.	3.6
4.	Measure ultra low voltages.	3.4
5.	Measure times.	3.4
6.	Measure currents.	3.2
7.	Make measurements using combination of instruments.	3.2
8.	Measure frequency response.	2.4
9.	Interpret wave forms.	2.4
10.	Measure capacitance.	2.2
11.	Measure power.	2.0
12.	Measure high voltages.	2.0

		MEAN SCORE, $\bar{X}$
F.	APPLY SAFETY PRECAUTIONS	2.94
1.	Adhere to on site safety regulations.	3.8
2.	Organize and maintain work area.	3.4
3.	Remove hazardous personal accessories.	3.2
4.	Select and use personal safety equipment.	3.2
5.	Follow safety regulations and procedures.	3.0
6.	Wear protective clothing.	3.0
7.	Maintain alarm safety systems.	3.0
8.	Select and use ladders.	2.6
9.	Maintain intrinsically safe systems.	2.2
10.	Insulate wrenches, screwdrivers, etc.	2.0
G.	USE AND CARE FOR TOOLS, EQUIPMENT AND MATERIALS	2.8
1.	Store and protect tools.	3.6
2.	Select and apply appropriate wrenches.	3.4
3.	Select and apply appropriate lubricants.	3.4
4.	Specify repairs to be made on tools and equipment by others.	3.4
5.	Maintain and store consumable hardware.	3.2
6.	Select and apply appropriate pliers.	3.2
7.	Select size and type of screwdriver required.	3.0
8.	Maintain soldering appliances.	3.0
9.	Use and care for wire strippers.	3.0
10.	Store and use cleaners and solvents.	3.0
11.	Select and use saws, files and cutting tools.	2.8
12.	Restore cutting edges.	2.8
13.	Make economic use of all materials.	2.8
14.	Select and use appropriate power hand tools.	2.8
15.	Select and use insulating sleeving and forms.	2.6
16.	Mix epoxy and potting compounds.	2.4
17.	Select and install appropriate fasteners.	2.4
18.	Select and apply appropriate adhesives.	2.4
19.	Select and apply appropriate alignment tools.	2.4
20.	Select and use snips, crimping and nibbling tools.	2.2
21.	Use and care for taps and dies.	2.0
H.	COMMUNICATE EFFECTIVELY	2.7
1.	Explain things orally.	3.6
2.	Identify and order parts.	3.2
3.	Request and obtain services.	3.0
4.	Follow through on inquiries.	3.0
5.	Document modifications changes.	3.0
6.	Establish relationships with customers and associates.	3.0

		MEAN SCORE, $\bar{X}$
7.	Complete failure reports.	2.8
8.	Adhere to communication procedures.	2.6
9.	Prepare sketches and drawings.	2.6
10.	Translate technical jargon.	2.6
11.	Assess and report potential modifications.	2.6
12.	Train others.	2.6
13.	Prepare written reports.	2.4
14.	Complete test sheets.	2.2
15.	Provide accurate details for contractors.	2.2
16.	Write specifications.	2.2
17.	Delegate authority.	2.2
18.	Organize files.	2.0
I.	REPAIR ELECTRO-MECHANICAL EQUIPMENT	2.7
1.	Apply soldering techniques	3.4
2.	Repair printed circuit boards.	3.4
3.	Exercise caution around solvents.	3.0
4.	Re-build complete assemblies.	3.0
5.	Re-assemble & align electrical components.	3.0
6.	Determine that unit works according to specs, after repair.	3.0
7.	Re-assemble and align mechanical components.	2.8
8.	Determine suitable substitutes.	2.8
9.	Identify physical components.	2.8
10.	Make electrical adjustments.	2.6
11.	Select correct wire and cable size and type.	2.6
12.	Organize and store removed parts, fasteners and associated hardware.	2.4
13.	Make crimp connections.	2.4
14.	Replenish fluids.	2.4
15.	Remove components from assemblies.	2.2
16.	Determine section to be removed.	2.2
17.	Determine methods of dis-assembly.	2.2
J.	MODIFY/ADAPT EQUIPMENT TO REQUIREMENTS	2.5
1.	Terminate cables in connectors.	3.0
2.	Replace mechanical parts.	3.0
3.	Make notes to facilitate re-assembly.	2.8
4.	Install modifications to existing equipment.	2.8
5.	Layout and build circuits.	2.4
6.	Assess systems and originate modifications as necessary.	2.2
7.	Make special test leads.	2.0
8.	Ensure modifications do not degrade other systems.	2.0
9.	Construct mechanical parts.	2.0

		MEAN SCORE, $\overline{X}$
K.	MEASURE PHYSICAL PARAMETERS	2.5
1.	Measure fluid and gas pressure.	2.8
2.	Measure temperature.	2.6
3.	Measure lengths and widths.	2.5
4.	Measure wire sizes.	2.2
L.	PERFORM MATHEMATICAL CALCULATIONS.	2.4
1.	Perform arithmetic calculations.	3.0
2.	Use calculators.	2.6
3.	Convert Binary, Octal and Decimal Numbers.	2.4
4.	Use mathematical tables.	2.2
5.	Use and/or orginate truth tables.	2.2
6.	Convert units of measurements.	2.0

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Calibrating Electronic Equipment			
1. Adhere to established safety standards.			
2. Follow manufacturer's calibration procedures.			
3. Use specified general purpose test equipment.			
4. Read schematics.			
5. Locate components.			
6. Make designated adjustments.			
7. Perform general purpose mathematic and electronic calculations.			
8. Document calibration data.			
9.			
10.			
B. Testing Electronic Equipment			
1. Adhere to established safety standards.			
2. Follow prescribed test procedures.			

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 2

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
3. Use specified test equipment.			
4. Read schematics.			
5. Perform general purpose mathematic and electronic calculations.			
6. Interpret test results.			
7. Make dispositions.			
8. Document test data.			
9.			
10.			
C. Troubleshooting Electronic Equipment			
1. Adhere to established safety standards.			
2. Perform visual inspections.			
3. Analyze symptoms.			
4. Read schematics.			
5. Utilize calibration procedures to isolate faults.			
6. Isolate faults by tracing and injucting signals.			
7. Isolate faults to module levels.			
8. Analyze voltage & current measurements.			
9. Analyze resistance measurements.			
10. Analyze analog circuitries.			
11. Analyze digital circuitries.			
12. Trace circuits to identify & isolate faults.			
13. Conduct in-circuit tests of components.			
14. Substitute components to isolate faults.			

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TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 3

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	15. Isolate faults to component levels.			
	16.			
	17.			
D.	Repairing Electronic Equipment			
	1. Adhere to established safety standards.			
	2. Read schematics.			
	3. Use appropriate tools.			
	4. Make appropriate adjustments.			
	5. Use appropriate types of solder.			
	6. Repair printed-circuit boards.			
	7. Replace defective components.			
	8. Lubricate units under repair.			
	9. Clean units under repair.			
	10.			
	11.			
E.	Fabricating Electronic Devices			
	1. Adhere to established safety standards.			
	2. Follow written and oral instructions.			
	3. Read schematics.			
	4. Perform general purpose mathematic and electronic calculations.			
	5. Identify electronic components.			
	6. Select electronic components.			
	7. Handle electronic components.			

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
8.	Prepare basic mechanical drawings.			
9.	Prepare basic sheet metal works.			
10.	Use appropriate types of solder.			
11.	Apply basic electronic construction techniques.			
12.	Use general purpose test equipment.			
13.	Make appropriate adjustments.			
14.	Clean units.			
15.	Do performance evaluations.			
16.				
17.				
F.	Working Within Business Environments			
1.	Adhere to company policies and procedures.			
2.	Communicate with peers.			
3.	Communicate with management.			
4.	Use technical terminologies.			
5.	Be compatible with co-workers.			
6.	Maintain technical competencies.			
7.	Display good work habits.			
8.	Keep accurate records.			
9.	Interact with computer terminals.			
10.				
11.				

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 5

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
G. Using Hand Tools			
1. Use soldering irons.			
2. Use wire strippers.			
3. Use crimping tools.			
4. Use sidecutters.			
5. Use long nose pliers.			
6. Use wire wrapping tools.			
7. Use solder suckers.			
8. Use solder wicks.			
9. Use heat sinks.			
10. Use alignment tools.			
11.			
12.			
H. Using General Purpose Test Equipment			
1. Use Oscilloscopes.			
2. Use volt-Ohmmeters.			
3. Use frequency counters.			
4. Use resistance decade boxes.			
5. Use capacitance decade boxes.			
6. Use power supplies.			
7. Use transistor testers.			
8.			
9.			

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
I.	Working With Components			
	1. Select resistors.			
	2. Install resistors.			
	3. Select capacitors.			
	4. Install capacitors.			
	5. Select inductors.			
	6. Install inductors.			
	7. Select discrete semi-conductor devices.			
	8. Install discrete semi-conductor devices.			
	9. Select transformers.			
	10. Install transformers.			
	11. Select antennas.			
	12. Select diodes.			
	13. Install diodes.			
	14. Select transistors.			
	15. Install transistors.			
	16. Install display devices.			
	17. Identify random access memories (RAMs).			
	18. Identify read only memories (ROMs).			
	19. Identify integrated circuits (ICs).			
	20.			
	21.			

TASK INVENTORY

FOR ELECTRONIC TECHNICIAN

PAGE 7

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
J. Additional tasks or general comments.			

COMPETENCY LISTING FOR

ELECTRONICS TECHNICIAN

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Electronics Technicians. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\overline{X}$
A.	SELECT AND APPLY TOOLS AND TESTING EQUIPMENT	2.9
1.	Select and apply volt-ohm and current meters.	3.4
2.	Select and apply oscilloscopes.	3.3
3.	Apply soldering techniques for electronic assembly.	2.8
4.	Select and apply power supplies.	2.5
5.	Select, care for, and operate hand and power tools.	2.3
B.	TROUBLE SHOOT, ISOLATE, AND REPAIR DEFECTIVE UNITS	2.8
1.	Analyze systems to isolate faults.	3.4
2.	Isolate faults to module, circuit, or component level.	3.3
3.	Analyze voltage and current measurements to isolate faults.	3.1
4.	Trace circuits to identify and isolate faults.	3.1
5.	Replace components and circuit modules.	3.1
6.	Conduct ohmmeter tests on circuit components.	3.0
7.	Inspect electrical connections.	2.8
8.	Conduct in-circuit tests of components.	2.8
9.	Interpret assembly drawings to determine location of components.	2.8
10.	Isolate faults by signal tracing and injection.	2.7
11.	Utilize calibration and maintenance procedures to isolate faults.	2.3
12.	Repair printed circuit cards.	2.3
13.	Adapt testing procedures for in-service measurements.	2.1

		MEAN SCORE, $\bar{X}$
C.	ANALYZE ELECTRONIC CIRCUITS AND SYSTEMS	2.5
1.	Analyze active D. C. circuits.	2.8
2.	Analyze active A. C. circuits.	2.6
3.	Analyze power supply circuits.	2.6
D.	IDENTIFY, SELECT, AND HANDLE ELECTRONIC COMPONENTS	2.4
1.	Identify, select, and handle digital integrated circuits.	2.8
2.	Identify, select, and handle transistors and fet's.	2.8
3.	Identify, select, and handle linear integrated circuits.	2.7
4.	Identify, select, and handle diodes and rectifiers.	2.5
5.	Identify and select resistors.	
6.	Identify and select semi-conductor gating devices.	2.4
7.	Identify, select, handle, and store capacitors.	2.2
8.	Identify and select connectors and terminals.	2.1
9.	Identify, select, and handle fuses and protective devices.	2.1
10.	Identify and select wire and cables.	2.0
E.	INTERPRET AND COMMUNICATE TECHNICAL INFORMATION	2.3
1.	Interpret schematics to determine performance parameters.	2.3
2.	Interpret specifications to determine performance parameters.	2.3
3.	Interpret manuals to determine maintenance procedures.	2.2
4.	Interpret catalogues to select equipment and components.	2.1
5.	Order components, supplies, and equipment.	2.1
F.	TEST, MAINTAIN, AND CALIBRATE ELECTRONIC EQUIPMENT	2.2
1.	Follow detailed test procedures.	2.6
2.	Analyze and interpret wave forms.	2.2
3.	Monitor and record routine system performance.	2.1
4.	Inspect equipment for mechanical faults and perform routine maintenance.	2.0
G.	APPLY MATHEMATIC AND SCIENCE CONCEPTS	2.1
1.	Utilize computer programs.	2.1

TASK INVENTORY

FOR NURSERY SCHOOL ATTENDANT

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Maintaining Supplies and Equipment			
1. Arrange and rearrange play areas.			
2. Set up and arrange beds.			
3. Wash toys and equipment.			
4. Maintain pets.			
5. Dispose of wastes.			
6.			
7.			
B. Preparing Food			
1. Plan meals and snacks.			
2. Plan food for special occasions.			
3. Prepare snacks.			
4. Prepare meals.			
5. Prepare cake for special occasion.			

TASK INVENTORY

FOR NURSERY SCHOOL ATTENDANT

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	6. Prepare fruit punch for special occasion.			
	7. Assist children during special occasion.			
	8. Serve foods for special occasion.			
	9. Prepare room for special occasion.			
	10. Clear away food.			
	11. Wash dishes.			
	12. Set table.			
	13. Serve food.			
	14.			
	15.			
C.	Assisting Children With Routines			
	1. Help children dress and undress.			
	2. Supervise rest time.			
	3. Supervise bathroom procedures.			
	4. Introduce new child to center.			
	5. Help children isolated because of emotional upset.			
	6. Perform daily health inspection.			
	7.			
	8.			
D.	Preparing Art Materials			
	1. Make art materials.			
	2. Prepare equipment and materials for activities.			

TASK INVENTORY

FOR NURSERY SCHOOL ATTENDANT

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
3.	Store equipment and materials.			
4.	Clean work tables and equipment.			
5.				
6.				
E.	Assisting with Clerical Duties.			
1.	Answer telephone and take messages.			
2.	Greet guests.			
3.	Collect fees.			
4.				
5.				
F.	Directing or Assisting with Activities.			
1.	Help to plan and evaluate activities and programs.			
2.	Routine clean-up.			
3.	Supervise creative activities.			
4.	Teach and lead singing and rhythmic activity.			
5.	Supervise dramatic play activities.			
6.	Assist children individually.			
7.	Assist children with group play.			
8.	Assist with special activities.			
9.	Read or tell stories.			
10.	Select recorded music.			
11.	Supervise manipulative play.			

TASK INVENTORY

FOR NURSERY SCHOOL ATTENDANT

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	12. Supervise outdoor play.			
	13. Observe children.			
	14.			
	15.			
G.	Assisting in the Planning of Activities and Programs			
	1. Help plan goals for year's program.			
	2. Help plan activities to be offered everyday.			
	3. Balance individual activities against group activities.			
	4. Evaiuate plans often and change them when needed.			
	5. Help plan daily schedule.			
	6. Help plan special acitvities.			
	7. Help plan special activities for children with special problems or needs.			
	8. Make charts and outlines of ideas for programs.			
	9.			
	10.			
H.	Assisting With Inventory			
	1. Make list of supplies needed.			
	2. Help take inventory for entire day care center.			
	3.			
	4.			
	5.			
	6.			

TASK INVENTORY

FOR NURSERY SCHOOL ATTENDANT

PAGE 5

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
I.	Working With Parents.			
	1. Introduce parent to center and its program.			
	2. Participate in parent conference.			
	3. Contact parents in emergency or illness.			
	4. Write communications to parents.			
	5.			
	6.			
J.	Additional tasks or general comments.			

COMPETENCY LISTING FOR

NURSERY SCHOOL ATTENDANT

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed nursery school attendants. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

			MEAN SCORE $\bar{X}$
A.	ASSIST IN THE PLANNING OF ACTIVITIES AND PROGRAMS		3.2
1.	Help plan activities to be offered everyday.	3.7	
2.	Help plan daily schedule.	3.6	
3.	Help plan special activities.	3.5	
4.	Help plan special activities for children with special problems or needs.	3.1	
5.	Balance individual activities against group activities	3.0	
6.	Help plan goals for year's program.	3.0	
7.	Evaluate plans often and change them when needed.	2.5	
B.	DIRECT OR ASSIST WITH ACTIVITIES		3.1
1.	Read or tell stories.	3.7	
2.	Assist children individually.	3.6	
3.	Assist children with group play.	3.5	
4.	Supervise outdoor play.	3.5	
5.	Assist with special activities.	3.4	
6.	Supervise manipulative play.	3.3	
7.	Observe children.	3.2	
8.	Supervise creative activities.	3.0	
9.	Help plan and evaluate activities and programs.	2.8	
10.	Supervise dramatic play activities.	2.8	
11.	Routine clean-up.	2.7	
12.	Select recorded music.	2.7	
13.	Teach and lead singing and rhythmic activity.	2.7	

			MEAN SCORE $\bar{X}$
C.	PREPARE ART MATERIALS		3.1
	1. Prepare equipment and materials for activities.	3.5	
	2. Clean work tables and equipment.	3.1	
	3. Make art materials.	2.9	
	4. Store equipment and materials.	2.9	
D.	MAINTAIN SUPPLIES AND EQUIPMENT		2.8
	1. Arrange and rearrange play areas.	3.3	
	2. Wash toys and equipment.	2.3	
E.	WORK WITH PARENTS		2.7
	1. Participate in parent conference.	2.9	
	2. Write communications to parents.	2.8	
	3. Contact parents in emergency or illness.	2.3	
F.	ASSIST CHILDREN WITH ROUTINES		2.6
	1. Help isolated children due to emotional illness.	2.8	
	2. Supervise bathroom procedures.	2.5	
	3. Introduce new child to center.	2.4	
G.	PREPARE FOOD		2.4
	1. Assist children during special occasion.	2.6	
	2. Prepare room for special occasion.	2.5	
	3. Serve foods for special occasion.	2.3	
	4. Plan food for special occasion.	2.1	
H.	ASSIST WITH CLERICAL DUTIES		2.1
	1. Greet guests.	2.1	
	2. Make list of supplies needed.	2.1	

TASK INVENTORY

FOR REAL ESTATE AGENT

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Introducing Self to Potential Users of Expertise and the Real Estate Business.			
1. Contact the previous and present centers of influence.			
2. Solicit listings from owners who offer their own property for sale.			
3. Contact people in affiliated professions.			
4. Participate in social and community activities.			
5.			
6.			
B. Obtaining Current Knowledge of Property Values and Their Availability.			
1. Research for decision on area of concentration of agent's sales efforts.			
2. Determine own broker's and competitors' listings in that area.			
3.			
4.			
C. Prospecting for Listings & Sales (Sources of Buyers & Sellers)			
1. Contact people who are trying to sell their property.			

TASK INVENTORY

FOR REAL ESTATE AGENT

PAGE 2

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
2. Contact people who have or possibly have potential need to purchase real estate.			
3.			
4.			
D. Listing Property for Sale			
1. Research for potential listings.			
2. Meet potential seller or sellers.			
3.			
4.			
E. Promoting the Listed Property			
1. Decide on promotion campaign for particular listing.			
2.			
3.			
F. Obtaining of Potential Buyers			
1. Use floor time.			
2. Advertise and promote through institutions.			
3. Post personal ads and individual promotion.			
4.			
5.			
G. Qualifying Potential Buyers			
1. Determine needs and wants.			
2. Determine financial situation.			
3. Establish common ground of communication.			

TASK INVENTORY

FOR REAL ESTATE AGENT

PAGE 3

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4.			
5.			
H. Showing of Property			
1. Select properties that will interest buyer.			
2. Choose route taken to property.			
3. Display showmanship in presenting property.			
4.			
5.			
I. Obtaining Offer to Purchase.			
1. Establish most appropriate selection.			
2. Convince (sell) buyer why he/she should buy this property at the time.			
3. Have all parties sign offer to purchase.			
4.			
5.			
J. Presenting Offer to the Seller.			
1. Determine approach to seller.			
2. Approach the seller.			
3. Close sale.			
4. Negotiate counteroffers.			
5.			
6.			

TASK INVENTORY

FOR REAL ESTATE AGENT

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
K.	Closing of Sale			
	1. Assist buyer in obtaining financing.			
	2. Order and track all legal and other documents appropriate to closing.			
	3. Transfer of title from seller to buyer.			
	4.			
	5.			
L.	Post-Servicing of Both Seller and Buyer			
	1. Coordinate agreements between buyer and seller made at closing.			
	2. Develop both buyer and seller into centers of influence.			
	3.			
	4.			
M.	Additional tasks or general comments.			

COMPETENCY LISTING FOR

REAL ESTATE AGENT

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Real Estate Agents. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\bar{X}$
A.	SHOWING OF PROPERTY	3.5
	1. Select properties that will interest buyer.	3.8
	2. Choose route taken to property.	3.5
	3. Display showmanship in presenting property.	3.2
B.	CLOSING OF SALE	3.3
	1. Assist buyer in obtaining financing.	3.4
	2. Order and track all legal and other documents appropriate to closing.	3.2
C.	PRESENTING OFFER TO THE SELLER	3.2
	1. Close sale.	3.4
	2. Negotiate counteroffers.	3.3
	3. Approach the seller.	3.2
	4. Determine approach to seller.	3.0
D.	QUALIFYING POTENTIAL BUYERS	3.2
	1. Determine needs and wants.	3.5
	2. Determine financial situation.	3.2
	3. Establish common ground of communication.	2.8
E.	PROSPECTING FOR LISTINGS AND SALES (SOURCES OF BUYERS & SELLERS)	3.0
	1. Contact people who have or possibly have potential need to purchase real estate.	3.0
F.	LISTING PROPERTY FOR SALE	2.9
	1. Meet potential seller or sellers.	2.9
G.	PROMOTING THE LISTED PROPERTY	2.8
	1. Decide on promotion campaign for particular listing.	2.8

COMPETENCY LISTING FOR REAL ESTATE AGENT, Page 2

		MEAN SCORE, $\bar{X}$
H.	OBTAINING OFFER TO PURCHASE	2.8
	1. Have all parties sign offer to purchase. 3.6	
	2. Establish most appropriate selection. 2.7	
	3. Convince (sell) buyer why he/she should buy this property at the time. 2.1	
I.	POST-SERVICING OF BOTH SELLER AND BUYER	2.5
	1. Coordinate agreements between buyer and seller made at closing. 2.8	
	2. Develop both buyer and seller into centers of influence. 2.1	
J.	OBTAINING CURRENT KNOWLEDGE OF PROPERTY VALUES AND THEIR AVAILABILITY	2.4
	1. Determine own broker's and competitors' listings in that area. 2.5	
	2. Research for decision on area of concentration of agent's sales efforts. 2.2	
K.	OBTAINING OF POTENTIAL BUYERS	2.2
	1. Post personal ads and individual promotion. 2.2	
L.	INTRODUCING SELF TO POTENTIAL USERS OF EXPERTISE AND THE REAL ESTATE BUSINESS	2.1
	1. Participate in social and community activities. 2.1	

TASK INVENTORY

FOR SOLAR TECHNICIAN

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

		YES (✓ check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A.	Designs, Modifies, Installs, and Repairs Solar Systems for Residential, Commercial, and Industrial Buildings.			
1.	Read blueprints and/or schematics.			
2.	Calculate heat loss/gain in building.			
3.	Size solar collector array.			
4.	Size water storage sub-systems.			
5.	Prescribe appropriate automatic solar controls.			
6.	Draft blueprints and/or schematics.			
7.	Install and wire solar control systems.			
8.	Install solar collectors on existing roofs.			
9.	Cut and join plastic pipe/plumbing.			
10.	Maintain and repair solar collector array.			
11.	Maintain and repair solar plumbing.			
12.	Maintain and repair solar blowers and fans.			
13.	Troubleshoot, maintain, & repair solar controls.			

TASK ANALYSIS

FOR SOLAR TECHNICIAN

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
14.	Size or prescribe solar plumbing to include pumps, based on flow rates, friction loss, and other data.			
15.	Size solar-assisted heat-pump systems.			
16.	Size auxiliary backup heating systems.			
17.	Size heat exchanger units.			
18.	Install prefabricated sheet metal posts.			
19.	Cut and braze copper pipe/tubing.			
20.	Install solar collector array or solar furnace at ground level.			
21.	Maintain and repair solar water pumps.			
22.	Install water storage sub-systems.			
23.	Install luring area/space heat exchanger units.			
24.	Size, build, and install rock storage sub-systems.			
25.	Size, prescribe and install solar pond or solar wall (thermal mass) systems.			
26.	Soft-solder electrical wires and connections.			
27.	Install auxiliary back-up heating systems.			
28.	Modify existing furnace to accept solar apparatus.			
29.	Prescribe types of movable insulation and apparatus in passive systems.			
30.	Cut and/or install glass or plastic glazing in collectors.			
31	Sell solar apparatus.			
32.	Size south-facing window system.			
33.	Calculate heat loss/gain in storage systems.			
34.	Install movable insulation and apparatus in passive systems.			
35.	Modify or relocate existing plumbing and exhaust vents on roof.			

TASK ANALYSIS

FOR SOLAR TECHNICIAN

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
36.	Design duct work requirements.			
37.	Install heating ducts and vents.			
38.	Install solar-assisted heat pumps.			
39.	Size or prescribe heating ducts, vents, and blowers based on flow rates, friction loss, and other data.			
40	Calculate heat loss/gain in plumbing and duct systems.			
41.	Silver braze copper alloy pipe and sheets.			
42.	Cut, bend, and fabricate sheet metal parts.			
43.	Cut, thread, and install galvanized pipe/plumbing.			
44.	Estimate cost of equipment and material.			
45.	Perform supervisory functions.			
46.	Perform administrative functions.			
B.	Additional Tasks or General Comments			

TASK INVENTORY

FOR TEACHER AIDE

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A.	Educational Philosophy			
1.	Demonstrate an ability to describe and discuss the goals of education.			
2.	Demonstrate an ability to describe and discuss the ethical conduct.			
3.				
4.				
B.	Education Policy			
1.	Demonstrate an ability to describe and discuss Board of Education policy.			
2.	Demonstrate an ability to describe and discuss local school policy.			
3.	Demonstrate an ability to describe and discuss relationships between individuals within the school.			
4.	Demonstrate an ability to describe and discuss the chain of authority within a school system.			
5.				
6.				

TASK INVENTORY

FOR TEACHER AIDE
PAGE 2

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
C.	Classroom Management			
	1. Demonstrate an ability to develop and maintain routine class records.			
	2. Demonstrate an ability to develop class profiles, charts, and graphs.			
	3. Demonstrate an ability to collect and account for student money.			
	4.			
	5.			
D.	Instructional Objectives			
	1. Demonstrate an ability to evaluate statements of instructional objectives.			
	2. Demonstrate an ability to develop statements of instructional objectives.			
	3.			
	4.			
D.	Techniques of Instruction			
	1. Demonstrate an ability to assist in large group instruction.			
	2. Demonstrate an ability to assist in small group instruction.			
	3. Demonstrate an ability to assist in individualized instruction.			
	4.			
	5.			
E.	Human Needs			
	1. Demonstrate an ability to describe and discuss human needs.			
	2.			
	3.			

TASK INVENTORY

FOR TEACHER AIDE
PAGE 3

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
F.	Individual Growth and Development			
1.	Demonstrate an ability to describe and discuss individual growth and development.			
2.	Demonstrate an ability to describe and discuss cultural and racial diversity.			
3.				
4.				
G.	Leadership			
1.	Demonstrate an ability to describe and discuss the role of a leader.			
2.	Demonstrate an ability to lead individual and group activities.			
3.				
4.				
H.	Classroom Behavior			
1.	Demonstrate an ability to describe and discuss types of classroom behavior.			
2.	Demonstrate an ability to describe and discuss problems in classroom discipline.			
3.	Demonstrate an ability to describe and discuss the techniques of reinforcement.			
4.				
5.				
I.	Communication Skills - The Communication Process			
1.	Demonstrate an ability to describe and discuss the communication process.			
2.	Demonstrate an ability to describe and discuss the oral communication process.			
3.	Demonstrate an ability to describe and discuss the written communication process.			
4.				
5.				

TASK INVENTORY

FOR TEACHER AIDE
PAGE 4

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
J.	Communication Skills - Communicating Orally			
1.	Demonstrate an ability to follow oral instructions.			
2.	Demonstrate an ability to follow written instruction.			
3.				
4.				
K.	Testing			
1.	Demonstrate an ability to describe and discuss standardized achievement testing.			
2.	Demonstrate an ability to describe and discuss the administration of standardized tests.			
3.	Demonstrate an ability to assist in the administration of a standardized test.			
4.	Demonstrate an ability to administer a standardized test.			
5.	Demonstrate an ability to describe and discuss the scoring of standardized tests.			
6.	Demonstrate an ability to assist in the scoring of standardized tests.			
7.	Demonstrate an ability to score standardized tests.			
8.				
9.				
L.	Testing			
1.	Demonstrate an ability to describe and discuss objective testing.			
2.	Demonstrate an ability to describe and discuss the development of objective test items.			
3.	Demonstrate an ability to assist in the development of objective test items.			
4.				
5.				

TASK INVENTORY

FOR TEACHER AIDE
PAGE 5

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
M.	Graphic Displays			
1.	Demonstrate an ability to use the chalkboard as a graphic display medium.			
2.	Demonstrate an ability to use the bulletin board as a graphic display medium.			
3.				
4.				
N.	Photography			
1.	Demonstrate an ability to describe and discuss the photographic process.			
2.	Demonstrate an ability to describe and demonstrate the use of the Kodak Ektagraphic Visualmaker.			
3.	Demonstrate an ability to assist in the use of the photographic medium in the instructional process.			
4.				
5.				
O.	Still Projection			
1.	Demonstrate an ability to describe and discuss the still projection process.			
2.	Demonstrate an ability to use still projection equipment and materials.			
3.	Demonstrate an ability to maintain and store still projection equipment and materials.			
4.				
5.				
P.	Motion Picture Projection			
1.	Demonstrate an ability to describe and discuss the motion picture projection process.			
2.	Demonstrate an ability to use motion picture projection equipment and materials.			
3.	Demonstrate an ability to maintain and store motion picture projection equipment and materials.			
4.	Demonstrate an ability to maintain and store motion picture projection equipment and materials & order & return.			

TASK INVENTORY

FOR TEACHER AIDE
PAGE 6

		YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	5.			
	6.			
Q.	South Recording and Reproduction			
	1. Demonstrate an ability to describe & discuss the sound recording and reproduction process.			
	2. Demonstrate an ability to use sound recording and reproduction equipment and materials.			
	3. Demonstrate an ability to maintain & store sound recording & reproduction equipment & materials.			
	4.			
	5.			
R.	Duplicating Equipment and Processes			
	1. Demonstrate an ability to describe & discuss duplicating equipment and processes.			
	2. Demonstrate an ability to use duplicating equipment & provide duplicating services to classroom teachers.			
	3.			
	4.			
S.	First Aid			
	1. Demonstrate an ability to successfully complete an authorized First Aid course.			
	2. Demonstrate an ability to administer First Aid as required.			
	3.			
	4.			
T.	School Safety			
	1. Demonstrate an ability to describe and discuss school safety.			
	2. Demonstrate an ability to identify and correct safety hazards in the school.			
	3. Demonstrate an ability to perform in school safety patrols as required.			

TASK INVENTORY

FOR TEACHER AIDE
PAGE 7

	YES (check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4.			
5.			
U. Additional tasks or general comments			

COMPETENCY LISTING FOR

TEACHER AIDE

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Teacher Aides. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

	MEAN SCORE, $\overline{X}$
A. COMMUNICATION SKILLS - COMMUNICATING ORALLY	3.2
1. Demonstrate an ability to follow oral instructions.	3.2
2. Demonstrate an ability to follow written instruction.	3.2
B. TECHNIQUES OF INSTRUCTION	3.1
1. Demonstrate an ability to assist an small group instruction.	3.2
2. Demonstrate an ability to assist in large group instruction.	3.0
3. Demonstrate an ability to assist in individualized instruction.	3.0
C. CLASSROOM BEHAVIOR	3.0
1. Demonstrate an ability to describe and discuss problems in classroom discipline.	3.1
2. Demonstrate an ability to describe and discuss types of classroom behavior.	3.0
3. Demonstrate an ability to describe and discuss the techniques of reinforcement.	3.0
D. HUMAN NEEDS	2.9
1. Demonstrate an ability to describe and discuss human needs.	2.9

	MEAN SCORE, $\bar{X}$	
E. LEADERSHIP		2.7
1. Demonstrate an ability to lead individual and group activities.	3.2	
2. Demonstrate an ability to describe and discuss the role of a leader.	2.1	
F. CLASSROOM MANAGEMENT		2.5
1. Demonstrate an ability to develop and maintain routine class records.	2.8	
2. Demonstrate an ability to collect and account for student money.	2.2	
G. COMMUNICATION SKILLS - THE COMMUNICATION PROCESS		2.5
1. Demonstrate an ability to describe and discuss the communication process.	2.5	
2. Demonstrate an ability to describe and discuss the oral communication process	2.5	
3. Demonstrate an ability to describe and discuss the written communication process.	2.4	
H. SCHOOL SAFETY		2.5
1. Demonstrate an ability to describe and discuss school safety.	2.5	
2. Demonstrate an ability to identify and correct safety hazards in the school.	2.5	
I. GRAPHIC DISPLAYS		2.3
1. Demonstrate an ability to use the chalkboard as a graphic display medium.	2.3	
J. EDUCATIONAL PHILOSPHY		2.3
1. Demonstrate an ability to describe and discuss the ethical conduct.	2.4	
2. Demonstrate an ability to describe and discuss the goals of education.	2.1	

		MEAN SCORE, $\bar{X}$
K.	EDUCATION POLICY	2.3
1.	Demonstrate an ability to describe and discuss relationships between individuals within the school.	2.3
2.	Demonstrate an ability to describe and discuss local school policy.	2.2
L.	INSTRUCTIONAL OBJECTIVES	2.3
1.	Demonstrate an ability to evaluate statements of instructional objectives.	2.3
2.	Demonstrate an ability to develop statements of instructional objectives.	2.2
M.	INDIVIDUAL GROWTH AND DEVELOPMENT	2.3
1.	Demonstrate an ability to describe and discuss individual growth and development.	2.5
2.	Demonstrate an ability to describe and discuss cultural and racial diversity.	2.1
N.	DUPLICATING EQUIPMENT AND PROCESSES	2.2
1.	Demonstrate an ability to use duplicating equipment and provide duplicating services to classroom teachers.	2.4
2.	Demonstrate an ability to describe and discuss duplicating equipment and processes.	2.0

TASK INVENTORY

FOR WAITER/WAITRESS

INSTRUCTIONS

A. Read the Task Statements in the left column.

B. Place a check mark in the column labeled YES if you perform this task on your present job.

C. Rate the time you spend on each task by using the number 1, 2, 3, or 4 in the column labeled TIME SPENT. Use the following scale:
   1. I RARELY do this task.
   2. I OCCASIONALLY do this task.
   3. I FREQUENTLY do this task.
   4. I ALWAYS do this task.

D. Rate the importance of this task by using the number 1, 2, 3 or 4 in the far right column labeled IMPORTANCE. Use the following scale:
   1. No importance.
   2. Some importance.
   3. Significant importance.
   4. Great importance.

E. Add any tasks that you perform, but are not included on this list. There is space for additions at the end of the task Inventory.

	YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
A. Develop Personal and Vocational Skills			
1. Understand the learning program.			
2. Know career opportunities.			
3. Know house rules and regulations.			
4. Understand instructions.			
5. Understand kitchen procedures.			
6. Know trade classifications.			
7. Know trade qualifications.			
8. Understand basic personnel supervision.			
9. Know responsibilities of employer and employee.			
10. Know how to find and succeed in employment.			
11.			
12			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 2

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
B.	Apply Safety and Accident Prevention Procedures			
	1. Know and apply personal safety.			
	2. Apply fire prevention procedures.			
	3. Use fire protection equipment.			
	4. Know and apply basic first aid principles.			
	5. Apply safe lifting and handling procedures.			
	6. Identify and report electrical hazards.			
	7. Apply good housekeeping.			
	8. Maintain a safe work environment.			
	9. Interpret workmens compensation board regulations.			
	10.			
	11.			
C.	Maintain suitable grooming and personal hygiene.			
	1. Understand importance of first impressions, customer reactions.			
	2. Maintain personal cleanliness and grooming.			
	3. Maintain posture and physical well being.			
	4. Select and care for working apparel.			
	5. Use cosmetics and jewelery effectively.			
	6. Apply personal hygiene as required by health act.			
	7.			
	8.			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 3

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
D.	Apply Sanitary Food Service Procedures			
	1. Define bacteria and identify causes of food borne illness.			
	2. State causes of food poisoning.			
	3. Apply prevention of food contamination.			
	4. Apply sanitary procedures as required by health act.			
	5. Apply safe food handling and storage procedures.			
	6. Health act requirement interpretation and application for managers and management trainees.			
	7.			
	8.			
E.	Identify, Select and Use Food and Beverage Equipment and Tableware			
	1. Define terminology (tableware and equipment).			
	2. Classify basic table settings.			
	3. Apply correct handling procedures for tableware.			
	4. Operate appliances and equipment.			
	5. Apply equipment and appliance cleaning procedures as required by health act.			
	6. Classify specialized tableware.			
	7.			
	8.			
F.	Apply Effective Menu Use and Selling Techniques			
	1. State purpose of menu.			
	2. Handle and care for menu properly.			
	3. Identify menu types.			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 4

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
4.	Understand menu layout.			
5.	Define menu terminology (basic).			
6.	Identify food accompaniements.			
7.	Identify food terminology (advanced).			
8.	Apply suggestive selling techniques.			
9.	Identify profitable sales items.			
10.	Apply display and presentation techniques.			
11.				
12.				
G.	Apply Customer Relations Procedures			
1.	Understand psychology of hospitality trade.			
2.	Develop professional service personality and attitude.			
3.	Understand importance of acknowledging and greeting customers.			
4.	Handle problem customers.			
5.	Handle unusual situations - house policies, legal.			
6.				
7.				
H.	Apply Counter or Coffee Shop Service Procedures			
1.	Carry china, cutlery and glassware with & without trays.			
2.	Identify station.			
3.	Identify and perform pre-opening duties breakfast, lunch.			
4.	Identify and perform pre-opening duties afternoon tea, dinner.			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 5

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
5.	Maintain station supplies and sidework.			
6.	Apply bussing procedures.			
7.	Clean and reset tables during service.			
8.	Apply closing procedures.			
9.	Apply portion control according to house policy.			
10.	Dispense ice cream and fountain products.			
11.	Coordinate timing of orders.			
12.				
13.				
I.	Apply Dining Room Service Procedures			
1.	Identify stations.			
2.	Identify and perform preopening duties breakfast, lunch, dinner.			
3.	Maintain station supplies and sidework.			
4.	Apply bussing procedures.			
5.	Define the three types of service American, Russian, French.			
6.	Apply american service procedures.			
7.	Clear and reset tables during service.			
8.	Apply Russian service procedures.			
9.	Coordinate timing of orders.			
10.	Apply French service procedures.			
11.	Cook by flambe.			
12.	Carve poultry, meat and fish.			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 6

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	13.			
	14.			
J.	Apply Beverage Service Procedures			
	1. Beverages, non-alcohol prepare and serve hot beverages.			
	2. Beverages, non-alcohol prepare and serve cold beverages.			
	3. Beverages, alcohol interpret applicable sections of govn't liquor act.			
	4. Beverages - alcohol, write classification of alcoholic beverages, malt, wine, spirits.			
	5. Pour and serve beer and cider.			
	6. Pour and serve wine, still, sparkling, fortified.			
	7. Interpret menu.			
	8. Identify house brands and product availability.			
	9. Identify mixed drinks by composition, by sight.			
	10. Serve spirits and mixed drinks.			
	11. Take, write & price & place beverage orders (alcohol).			
	12. Apply suggestive selling techniques.			
	13. Advanced beverage service (wines).			
	14.			
	15.			
K.	Apply Special Functions Service Procedures			
	1. Apply alcoholic beverage service.			
	2.			
	3.			

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 7

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
L.	Apply Ordering and Guest Check Procedures.			
1.	Understand purpose and control of guest check.			
2.	Define various checking systems.			
3.	Develop effective communications technique-customer-kitchen-service station.			
4.	Write and price orders.			
5.	Place and receive the order.			
6.	Identify and write standard abbreviations.			
7.	Present guest check, coffee shop, dining room.			
8.	Estimate time requirements for various menu items.			
9.				
10.				
M.	Apply Elements of Management Related to Food and Beverage Service			
1.	Understand departmental relationship.			
2.	Interpret house rules and regulations.			
3.	Do basic food costing.			
4.	Apply basic cost and profit procedures.			
5.	Perform hosting duties.			
6.	Understand the importance of tourism.			
7.	Training to junior management level in management technique.			
8.	Process credit cards and cash according to house policy.			
9.	Use cash register (basic).			
10.				

TASK ANALYSIS

FOR WAITER/WAITRESS

PAGE 8

		YES (✓check)	TIME SPENT (rate 1 - 4)	IMPORTANCE (rate 1 - 4)
	11.			
N.	Additional tasks or general comments.			

COMPETENCY LISTING FOR

WAITER/WAITRESS

The general categories of competencies and the listing of specific competencies have been rank ordered, using the data from Task Inventories completed by employed Waiters/Waitresses. The following scale was used:

1. No Importance
2. Some Importance
3. Significant Importance
4. Great Importance

Specific competencies were eliminated if they did not rank 2.0 or higher.

		MEAN SCORE, $\bar{X}$
A.	MAINTAIN SUITABLE GROOMING AND PERSONAL HYGIENE	3.55
1.	Understand importance of first impressions, customer reactions.	3.9
2.	Maintain personal cleanliness and grooming.	3.9
3.	Select and care for working apparel.	3.7
4.	Maintain posture and physical well being.	3.6
5.	Use cosmetics and jewelery effectively.	3.1
6.	Apply personal hygiene as required by health act.	3.1
B.	APPLY CUSTOMER RELATIONS PROCEDURES	3.4
1.	Understand importance of acknowledging and greeting customers.	3.8
2.	Handle problem customers.	3.8
3.	Develop professional service personality and attitude.	3.7
4.	Understand psychology of hospitality trade.	3.4
5.	Handle unusual situations - house policies, legal.	2.2
C.	APPLY DINING ROOM SERVICE PROCEDURES	3.31
1.	Maintian station supplies and sidework.	3.6
2.	Apply bussing prodedures.	3.6
3.	Coordinate timing of orders.	3.5
4.	Clear and reset tables during service.	3.4
5.	Identify and perform preopening duties breakfast, lunch, and dinner.	3.4
6.	Identify stations.	3.2
7.	Apply American service procedures.	2.4

		MEAN SCORE, $\bar{X}$
D.	APPLY SAFETY AND ACCIDENT PREVENTION PROCEDURES	3.26
1.	Apply safe lifting and handling procedures.	3.6
2.	Maintain a safe work environment.	3.6
3.	Know and apply personal safety.	3.4
4.	Apply good housekeeping.	3.3
5.	Identify and report electrical hazards.	3.1
6.	Apply fire prevention procedures.	2.9
7.	Know and apply basic fist aid principles.	2.9
E.	APPLY ORDERING AND GUEST CHECK PROCEDURES	3.22
1.	Understand purpose and control of guest check.	3.6
2.	Develop effective communications technique -- customer-kitchen-service station.	3.3
3.	Place and receive the order.	3.3
4.	Present guest check, coffee shop, dining room.	3.3
5.	Identify and write standard abbreviations.	3.2
6.	Write and price orders.	3.0
7.	Estimate time requirements for various menu items.	2.9
F.	DEVELOP PERSONAL AND VOCATIONAL SKILLS	2.89
1.	Understand kitchen procedures.	3.8
2.	Understand instructions.	3.6
3.	Know house rules and regulations.	3.4
4.	Know responsibilities of employer and employee.	3.4
5.	Know how to find and succeed in employment.	2.9
6.	Understand basic personnel supervision.	2.9
7.	Know career opportunities.	2.5
8.	Know trade qualifications.	2.2
9.	Understand the learning program.	2.1
10.	Know trade classifications.	2.1
G.	IDENTIFY, SELECT, AND USE FOOD AND BEVERAGE EQUIPMENT AND TABLEWARE	2.77
1.	Apply correct handling procedures for tableware.	3.2
2.	Operate appliances and equipment.	3.2
3.	Define terminology (tableware and equipment).	2.9
4.	Classify basic table settings.	2.7
5.	Apply equipment and appliance cleaning procedures as required by health act.	2.3
6.	Classify specialized tableware.	2.3

		MEAN SCORE, $\bar{X}$
H.	APPLY BEVERAGE SERVICE PROCEDURES	2.61
1.	Beverages, non-alcohol, prepare and serve hot beverages.	3.6
2.	Beverages, non-alcohol, prepare and serve cold beverages.	3.4
3.	Apply suggestive selling techniques.	2.9
4.	Pour and serve wine, still, sparkling, fortified.	2.6
5.	Interpret menu.	2.6
6.	Take, write, & price & place beverage orders (alcohol).	2.4
7.	Identify house brands and product availability.	2.2
8.	Identify mixed drinks by composition, by sight.	2.2
9.	Serve spirits and mixed drinks.	2.2
10.	Advanced beverage service (wines).	2.1
I.	APPLY EFFECTIVE MENU USE AND SELLING TECHNIQUES	2.6
1.	Apply suggestive selling techniques.	3.2
2.	Identify food accompaniments.	3.0
3.	Handle and care for menu properly.	2.9
4.	Understand menu layout.	2.9
5.	Identify profitable sales items.	2.7
6.	Define menu terminology (basic).	2.6
7.	Identify menu types.	2.3
8.	State purpose of menu.	2.1
9.	Apply display and presentation techniques.	2.1
J.	APPLY SANITARY FOOD SERVICE PROCEDURES	2.6
1.	Apply safe food handling and storage procedures.	2.9
2.	Apply prevention of food contamination.	2.8
3.	State causes of food poisoning.	2.4
4.	Apply sanitary procedures as required by health act.	2.3
K.	APPLY COUNTER OR COFFEE SHOP SERVICE PROCEDURES	2.57
1.	Maintain station supplies and sidework.	2.9
2.	Identify and perform pre-opening duties, breakfast, lunch.	2.8
3.	Apply bussing procedures.	2.8
4.	Clean and reset tables during service.	2.8
5.	Coordinate timing of orders.	2.8
6.	Carry china, cutlery, and glassware with & without trays.	2.4
7.	Apply closing procedures.	2.4
8.	Identify station.	2.3
9.	Apply portion control according to house policy.	2.3
10.	Identify and perform pre-opening duties afternoon tea, dinner.	2.2
L.	APPLY ELEMENTS OF MANAGEMENT RELATED TO FOOD AND BEVERAGE SERVICE	2.35
1.	Understand departmental relationship.	2.4
2.	Interpret house rules and regulations.	2.4
3.	Process credit cards and cash according to house policy.	2.4
4.	Perform hosting duties.	2.2